DOCUMENT RESUME

ED 282 427 FL 016 725

AUTHOR Larrimore, B., Ed.
TITLE Papers in Literacy. Work Papers of SIL-AAB, Series B, Volume 12.
INSTITUTION Summer Inst. of Linguistics, Darwin (Australia). Australian Aborigines Branch.
REPORT NO ISBN-0-86892-316-8
PUB DATE Dec 84
NOTE 185p.
PUB TYPE Collected Works - General (020) -- Reports - Research/Technical (143)

EDRS PRICE MF01/PC08 Plus Postage.
DESCRIPTORS *Bilingual Instructional Materials; Creative Writing; *Creoles; Diagnostic Tests; Ethnic Groups; Foreign Countries; *Indigenous Populations; Language Research; Language Tests; *Literacy Education; Material Development; Orthographic Symbols; *Phonology; Reading Instruction; Reading Materials; Teacher Education; Uncommonly Taught Languages; Vowels
IDENTIFIERS *Aboriginal People; Anindilyakwa; *Australia (Northern Territory); Kunbidji; Ndjebbana

ABSTRACT

Four papers relating to literacy education for Australian Aboriginal peoples are presented. "Testing Epenthetic Vowels in Anindilyakwa" by Velma J. Leeding reports on a study of Aboriginal perceptions of a short transitional vowel. In "Diagnostic Testing of the Anindilyakwa Orthography for Both Reading and Writing," Velma J. Leeding outlines the content and results of the tests designed to determine the viability of the Anindilyakwa orthography chosen by the Aborigines at Umbakumba, Groote Eylandt, Northern Territory. "Preparing Vernacular Beginning Reading Materials for the Ndjebbana (Kunbidji) Bilingual Education Program: Some Linguistic Aspects" by Graham R. McKay discusses linguistic issues in the development of instructional materials for a literacy program in Northern Territory schools. "Reports on Warlpiri Literacy Workshops" by Stephen M. Swartz describes a literacy teacher training program and a writers' workshop at Lajamanu, and includes materials from both programs. (MSE)

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Series B Volume 12

PAPERS IN LITERACY

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WORK PAPERS OF SIL-AAB

Series B Volume 12

PAPERS IN LITERACY

Editor: B. Larrimore

SUMMER INSTITUTE OF LINGUISTICS
AUSTRALIAN ABORIGINES BRANCH
DARWIN
DECEMBER 1984

NATIONAL LIBRARY OF AUSTRALIA
Cataloguing-in-publication Data

Papers in literacy.

Bibliography.
ISBN 0 86892 316 8.

1. Australian languages - Addresses, essays, lectures. 2. Linguistics - Australia - Addresses, essays, lectures. 3. Reading research - Australia - Addresses, essays, lectures. I. Larrimore, Bonnie. II. Summer Institute of Linguistics. Australian Aborigines Branch. (Series: Work papers of SIL-AAB. Series B; Volume 12).

499'.15

© SUMMER INSTITUTE OF LINGUISTICS 1985

ISSN 0157-5066
ISBN 0 86892 316 8

PREFACE

These Work Papers are being produced in two series by the Summer Institute of Linguistics, Australian Aborigines Branch, Inc. in order to make results of SIL research in Australia more widely available. Series A includes technical papers on linguistic or anthropological analysis and description, or on literacy research. Series contains material suitable for a broader audience, including the lay audience for which it is often designed, such as language learning lessons and dictionaries.

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Work Papers of SIL-AAB
Series B Volume 12
December 1984

TESTING EPENTHETIC VOWELS IN ANINDILYAKWA

Velma J. Leeding

0. INTRODUCTION

A short transitional vowel occurs in Anindilyakwa following flap /ř/, retroflex /ṛ/ and alveolar /l/. It can be so short in the unstressed position that it has not been recorded as a phonetic variant or, with a change of stress/rhythm, can have the same [mora] of length as a full vowel.

[akářŋa ~ akaříŋa] 'teeth'

[yimúřŋʷa ~ yimuřúŋʷa] 'fruit (sp.)'

Difficulties have been experienced in determining whether all such

vowels have full phonemic status or are simply a phonetic transition between two consonants. Some of the Aborigines only accept one of the variants as the correct precise form but may use both, but not all speakers agree as to the precise form of specific words.

When the epenthetic vowel has not been written, some Aboriginal literates have had problems in reading the resultant series of consonants, especially when a series occurred more than once in a word. Miss Judith Stokes, C.M.S. linguist at Angurugu, noted that, in testing reading, the Aborigines there did not accept the inclusion of the vowel in a group of words with a possible epenthetic vowel. I have noted at Umbakumba that, when writing, if an Aboriginal failed to write the consonant grapheme which closes a syllable, the missing consonant plus a vowel was inserted when self-correcting.

Individual literate Aborigines at Umbakumba have been using different spellings of their own choice since 1977 but were taught the Angurugu spelling from 1975 to 1977. The Angurugu spelling of some words has been altered since 1975.

The purpose of this paper is to outline the methods of testing Aboriginal reactions to the epenthetic vowel and the interpretation of the results in relation to the phonological and morphological factors so that guidelines can be established for consistency in spelling. The orthography used throughout the paper is the current choice of the Umbakumba Aborigines and does not represent a one-to-one correspondence between phoneme and grapheme.

1. TESTING METHODS

Testing took place at Umbakumba over a period of 18 months. Four different tests were given, using either auditory discrimination or writing skills.

Method 1:

This test was administered in 1979. Sets of three or four "control" words were made to suit each word with a problem. Each problem word was added to two sets, viz. with the minimum number of syllables or the maximum number. The Aborigines were asked to listen to the set and state whether the last word "fitted" the set, i.e. had the same number of syllables. The test was based on auditory discrimination and patterning.

Method 2:

In the first half of 1980, 24 tests (377 words) were set up to cover the

whole orthographical system. Eleven "control" words where a full vowel occurred in the same position as an epenthetic vowel were included throughout and 53 words with an epenthetic-type vowel were tested in the last 15 tests.

The tests utilised writing skills. The testees were given the word, asked to pronounce it for themselves, and to fill in the missing part (see Appendix). The tests were designed so that the "part" to be written was either one or two syllables, or a part of a syllable. (A weakness in the test materials showed up later, viz. there should have been more "control" words where only a single grapheme was needed to complete the word.)

The tests were given over a period of 12 weeks. They were titled "Revision Lessons," and the Aborigines were told by the linguist that the aim was to check their spelling to see where more help was needed. The testees were not told which specific graphemes were being checked in each test but it was often deduced.

Method 3:

As Method 2 did not produce a consistent pattern, further testing was done as a separate exercise. In late 1980, an initial list of 47 words was compiled. Examples of "control" words and problem words were taken randomly from the dictionary and listed in alphabetical order. Each Aboriginal was tested individually.

The lists were typed out with the following caption: "How many syllables are in the following words? We can read the words in both spellings but there is a problem because we are not all spelling them the same way. Tick the way you would like to spell the word." This was followed by words listed with the two alternatives in spelling, together with the English meaning. (See Appendix, Table 1.) The original aim was to use the written form so that there would be no interference because of the pronunciation by the linguist. The method of administering the test did not prove to be satisfactory because the first testee did not use the skill of breaking words into syllables but examined the appearance of the two forms. The method was then changed to one of only auditory discrimination where the Aboriginal repeated the word, broke it aloud into syllables and counted them. (This technique was familiar because it is used in adult literacy classes.) The linguist then ticked the corresponding form.

In January 1981, Miss Judith Stokes supplied a list of a further 30 words of her choice. One word was deleted because it was not known/used at Umbakumba. Unfortunately, some of the flora and fauna words were not known by all testees and could not be included in the scores.

The number of syllables counted was accepted for scoring purposes, whether or not they accurately pronounced the closure each time. This was felt to be the more accurate way of evaluating their concept of the emic vowels.

Method 4:

The testing of epenthetic vowels was incorporated into the testing of the whole orthographical system in April and May 1981. Tests were developed along similar lines to those for diagnostic testing of English reading. In one section of the test, literates were required to write a list of 100 words which had been read onto cassette tape by a mature speaker of Anindilyakwa. "Control" words and "problem" words were scattered throughout the list.

2. THOSE TESTED

In Method 1, two literate Aborigines were tested before it was decided to disband this type of testing.

In Method 2, six literates were tested with ages ranging from 22 to 44 years of age.

In Method 3, there were eleven Aborigines selected to do the original test but only nine of these were available for the supplementary test. Some were fully literate in the vernacular but others were only in the process of becoming literate. All had done sufficient in auditory discrimination of syllables to be able to cope with the test. Ages ranged from 22 to 44 years of age.

In Method 4, five literates were tested with ages ranging from 24 to 37 years of age.

3. RESULTS OF THE TESTING

Method 1:

Anindilyakwa has a strong pattern of rhythm/stress/timing. It was found that, once this pattern was set up through the "control" words, the problem words were made to fit the pattern. Thus problem words were accepted in the two alternative sets. The testing method was considered to be unsatisfactory and was discontinued.

Method 2:

The scores for this method of writing the missing syllables are given on Table 2 (Appendix). The Table is divided into two major sections for

"control" versus "problem" words. The words are then grouped under the consonants contiguous to the possible epenthetic vowel. These groups are then classified as to whether the linguists recorded a full vowel, an epenthetic or zero. The scores for each word vary because some words were repeated and others were not known by all Aborigines.

A comparison of the scores in relation to the phonetic values assigned by the linguists is as follows:

(a) where both linguists have recorded a full vowel the Aborigines included the vowel and were fully in agreement except in one word.
Score: 58/63 94%

(b) where both linguists have not recorded a vowel the Aborigines tend to agree to its omission.
Score: 190/245 78%

(c) where the linguists have recorded both or zero the Aborigines have a slight preference for its omission.
Score: 66/100 66%

(d) where the linguists differ as to a vowel or an epenthetic
No examples

Method 3:

The scores are shown in Table 3 (Appendix) following the same format as previously.

As there is always a possibility that the order of the words could have influenced the choices, the scores are listed on Table 1. These indicate that the words were considered separately, with the possible exception that a pattern was set up for words beginning with 'y'. Looking at the individual tests, two literates had a strong tendency towards inclusion of the vowel, two towards its omission, but the other seven varied.

A comparison of the scores is as follows:

(a) where both linguists have recorded a full vowel the Aborigines prefer to insert the vowel.
Score: 99/109 91%

(b) where the linguists have not recorded a vowel the Aborigines prefer to omit one.
Score: 176/231 76%

(c) where the linguists have recorded both or zero the Aborigines have a slight preference to insert a vowel.
Score: 199/324 61%

(d) where one linguist has recorded a full vowel but the other hasn't the Aborigines prefer to insert the vowel.
Score: 53/66 80%

Method 4:

The scores for the method where the whole word was written are shown on Table 4 (Appendix) in the same format. Those Aborigines who had a strong tendency for or against the insertion of a vowel showed the same tendency here as in Method 3.

A comparison of the scores is as follows:

(a) where both linguists record a vowel the Aborigines tend to insert the vowel.
Score 54/64 84%

(b) where the linguists have not recorded a vowel the Aborigines have a strong tendency to omit it.
Score: 75/82 92%

(c) where the linguists have recorded both or zero the Aborigines have shown no obvious preference for either its inclusion or omission. There is a slight preference for its insertion.
Score: 18/32 56%

(d) No examples

4. COMPARISON OF METHODS

A comparison of the scores for the various methods is shown in the chart below. Methods 2 and 4 required writing skills but Method 3 only auditory discrimination skills. Note that the percentages in (a) and (d) refer to the insertion of a vowel but in (b) and (c) to the omission.

	CONTROL WORDS		PROBLEM WORDS	
	(a)	(b)	(c)	(d)
Method 2	94%	78%	66%	-
Method 3	91%	76%	39%	80%
Method 4	84%	92%	44%	-

In the Control words, there is little difference between Methods 2 and 3 but Method 4 yielded a significantly higher percentage of omissions of the epenthetic vowels. In the Problem words, Method 2 shows a higher percentage for the omission of epenthetic vowels. It would seem, therefore, that the methods using writing skills show greater omission of the vowel than the method using only auditory discrimination skills. It must be remembered, however, that those taking the written tests were fully literate and more experienced in handling the orthography than some of those taking the auditory test.

A more concise way of making a comparison between the methods is to limit it to only those words which appear on more than one list. The details are shown on Table 5 (Appendix) where the words are listed according to the groups for scoring.

	CONTROL WORDS		PROBLEM WORDS	
	(a)	(b)	(c)	(d)
Method 2	100%	90%	65%	-
Method 3	100%	81%	42%	91%
Method 4	90%	95%	58%	100%

In both the Control and Problem words, Methods 2 and 4 have shown higher percentages of omission of the epenthetic vowel than Method 3. This correlates generally with the previous chart but the differences in percentages are more marked.

5. ANALYSIS OF RESULTS

It is obvious from the scores that, where the linguists are most confused, so are the Aborigines. While it would be easy to say that the problem lies in the teachers' insecurity being transferred to the students, it is also possible that the structure of the language is a source of the problem. The possible factors have been investigated as applied to the larger test using Method 3. Methods 2 and 4 show a stronger tendency for the Aborigines to omit the epenthetic vowels. Remarks cover only those words where an epenthetic is involved, unless otherwise stated.

(i) The Factor of Stress

The epenthetic vowel is sometimes optionally stressed and lengthened to a full vowel. Were vowels inserted in this position? The general rule

for word stress is that primary stress falls on the penultimate syllable. It was anticipated that this would be a likely place for the insertion of the vowel.

In the three words where an optional vowel occurs in the stressed syllable, a vowel was inserted in only 38% of the occurrences.

Where an epenthetic vowel was recorded in thirteen words but was unstressed, testees inserted the vowel 76% of the time.

As the vowels were inserted only half as many times for the optional full, stressed vowel as for the unstressed epenthetic, it seems unlikely that stress and its resultant lengthening of the vowel are criteria for decision-making.

(ii) The Factor of Rhythm/timing

The rhythm and timing of utterances is always maintained and syllables seem to be inserted or deleted in order to maintain that rhythm. While the system is not fully analysed, pairs of words with similar rhythm patterns have been compared. These were selected randomly and are listed below.

	Vowel Inserted	Vowel Omitted
*awarr*walya*	6	5
*ayarr*murra*	6	5
*ngarrabuwarr*kina*	4	8
*ayangkidirr*bura*	2	8
*mar*mba*	8	1
*mar*nja*	4	5
*yarr*kaliwa*	9	2
*yarr*kwumarnda*	7	2
*yarr*buwa*	10	1
*yarr*milya*	10	1
*yilarr*banda*	2	8
*dimirr*mala*	8	3
*yingarr*banla*	1	4
*yirarr*nganja*	4	5

In four pairs out of the seven, the two words show a similar ratio but in three they do not. The differences are great enough to indicate that this factor is not a strong criterion in making decisions.

(iii) Number of Syllables

This criterion is closely linked to that of rhythm/timing. Have the testees made their decisions because of a preference for an even or odd number of syllables in the word?

The following statistics show the scores for each set of words in terms of their preference for the maximum number of syllables.

2 ⟶ 3	(98/129)	76%
4 ⟶ 5	(78/155)	50%
6 ⟶ 7	(31/110)	28%
3 ⟶ 4	(66/165)	33%
5 ⟶ 6	(29/67)	43%

These results do not actually show a preference for either odd or even number of syllables but they do show that the Aborigines are most likely to add a vowel in short words. The average length of a word is three to six syllables.

(iv) Consonant Clusters

The structure of the language permits a syllable to be closed by one or two consonants, thus making a possible sequence of three consonants. Has a potential sequence of three consonants influenced their decision?

In 11 words where the omission of a vowel creates a tri-cluster, the vowel was omitted in 47% (60/127). This suggests that the complexity of a string of consonants is not in focus.

(v) Preceding Consonant

Have the literates been influenced by the phonetic quality of the consonant preceding the epenthetic?

Scores for the omission of the vowel are as follows:

Following	rr	(249/510)	49%
	r	(55/91)	60%
	l	(22/42)	52%

As the results are fairly consistent, the preceding consonant does not appear to be influencing decisions.

(vi) Following Consonant

Has the phonetic nature of the following consonant influenced decisions? Were more vowels inserted if the following consonant was a continuant rather than a stop?

Scores for the omission of the vowels are as follow:

		pre-stop		pre-continuant	
Following	rr	(147/259)	67%	(101/248)	41%
	r	(8/9)	90%	(48/97)	50%
	l	(21/31)	68%	(1/11)	9%

More vowels were omitted preceding stops than continuants. Decisions do seem to have been based to some extent on a preference for the vowel before continuants.

(vii) Morpheme Boundaries

Was a vowel always inserted at a morpheme boundary? There are two types of morphemes involved in the tests for which the rules for syllable deletion vary, viz. a juncture formed by a root/stem and its affixation, versus two morphemes which form a compound stem. In the first type a full vowel can be reduced to an epenthetic but in the second the syllable /ki/ is deleted under certain rules creating the sort of consonant sequence where an epenthetic is likely to occur.

In the list of Control words, all those where the linguists recorded a vowel were of the first type. The Aborigines included the vowel 90% of the time. In the list of Control words where a vowel was not recorded by linguists, the Aborigines omitted the vowel 83% (5/6) of the time—these were of the second category. Problem words are only available for the second category for which Aborigines omitted the vowel 61% (19/31) of the time.

The results show that where the linguists have written a vowel between a root and its affixation, the Aborigines agree. The problem area is in the situation where a syllable is deleted in a compound stem. It would appear that some of the Aborigines react to the syllable which has been deleted by writing a vowel but it should be noted that no Aboriginal inserted the full syllable. (In some compound stems the rule to delete /ki/ is obligatory but in others it is optional.)

(viii) Phonetic Realisation of a Full Vowel or Epenthetic

The results show that, when a full vowel is heard, the Aborigines mostly hear it and write it (average score 90%). When an epenthetic is not heard by the linguists, the Aborigines usually omit it (average 82%).

When the linguists record an epenthetic and zero, the Aborigines are in a state of indecision. The linguists mostly write Ø in this situation but there is a significant lack of consistency. The Aborigines have omitted the vowel on an average of 50%.

When one linguist has recorded a full vowel and the other has not, there is an average of 80% for the Aborigines in inserting a vowel. Looking at the specific words, however, shows that the Aborigines agree with each linguist about half of the time.

It does seem that the phonetic nature of the vowel is influencing the decisions in that full vowels are usually identified as such.

6. CONCLUSION

There are apparently three factors which have tended to influence the Aborigines in making their decisions.

(i) Following Consonant

The phonetic nature of the continuant, rather than the stop, has influenced some Aborigines to insert a vowel, but the scores are not high enough for this to be used as a criterion for spelling.

(ii) Morpheme Boundaries

Where the morpheme boundary occurs between a root/stem and an affix, the scores of the Aborigines are high enough to indicate that this vowel should always be written. Most of these words were included in the Control Group because the linguists have always heard and written the vowel, e.g. *yirri-nga* 'we'. The tests corroborate the present orthography.

The more difficult problem is where there is a morpheme juncture within a stem. Most stems have long and short forms when the root is an adjective or a verb, e.g. *a-jalki-ngburingka ~ a-jalk-buringka* 'dry (of a place)'. In some nouns, only a short form appears to be used, e.g. *a-larr-mur.da* 'dusk' where the first morpheme of the stem is *-larrki-*. Anindilyakwa has long and short forms of quite a lot of words with some

Aborigines only using the short forms. Where a syllable is optionally deleted, the normal practice is to allow the literate to spell according to both long and short forms. If this practice is extended to cover the deletion of a syllable which results in a possible epenthetic, the vowel would not be written. Such a decision, however, is based on the structure of the language because the test scores do not give a definite conclusion.

(iii) Phonetic Realisation

The Aborigines, like the linguists, have leaned heavily on the pronunciation to determine the emic nature of the vowel. While there is confusion and indecision shown in the scores, it is also apparent that where a full vowel occurs there is much less indecision. It would appear that the best system would be to write only the full vowels and to omit the vowel wherever an epenthetic occurs without variation with a full vowel.

It should also be noted that there has been very little inconsistency in the linguists' writing of the full vowel. The problem with the epenthetic has arisen because of a lack of consistency in pairs of words which are phonetically the same but have been spelt differently, e.g.

[yaɾ^{ə}ŋa]	*yarrnga*	'leech'
[maɾ^{ə}ŋa]	*marringa*	'sleep'
[dimiɾ^{ə}mara]	*dimirrmara*	'sandfly'
[diɾ^{ə}mala]	*dirrimala*	'wind'

This has led to conflict and insecurity. Some Aborigines seem to have chosen one as the norm while others chose the other, but most have been generally confused. This confusion seems to have been extended into other words where the epenthetic follows /r/ and where spelling has been consistent.

Because there is confusion, it would seem wisest to make a decision on both the structure of the language (linguistic) and on the contrast in scores between a full vowel and a problem vowel (tests). It is concluded that:

(a) Control words in Group (a) should be written with a vowel but some words from Group (d) should also be included, e.g. *yarrimilya* 'coral'.

(b) Control words in Group (b) should continue to be written without a vowel, e.g. *arrkwara* 'worm'.

(c) Problem words where the linguist hears either zero or an epenthetic are in contrast with the full vowels and should be written without a vowel, e.g. *marrnga* 'sleep', *awarrwalya* 'shade'.

Having made such decisions, language data was again checked. Minimal contrasts were found to be maintained:

darrba	'trepang'
darriba	'stingray'
amaringka	'edible roots'
amarngka	'laugh'

It was also found that, with the writing of *marrnga* 'sleep' without a medial vowel, the optional form of the root correlated with other words where the consonant cluster /rrng/ is reduced to /n/ preceding a stop, e.g. *la-marrng-bujina* ~ *la-man-bujina* 'to sleep well'.

Where a vowel is inserted or deleted to maintain the rhythm of the sentence, rules are tentatively stated as:

(i) an emic vowel can be reduced to an epenthetic when it occurs in an unstressed position, usually antepenultimate.

(ii) an epenthetic vowel (non-phonemic) can be lengthened to a full vowel when it falls in the penultimate syllable. This is rare and the resultant vowel is not phonemic. If the maintenance of the rhythm requires the addition of a syllable, it seems to occur at the places where there is usually an epenthetic.

The above rules must be applied systematically to all data so that the Aborigines can begin to be systematic also. It is highly likely that some will react to a change in a common word which they have learned to spell in a certain way. It has been found, however, that if these words are not focused on, the change comes automatically once a strong pattern has been established in phonics. Both linguists have a few words which will need to be altered.

After the above system was set up, the words were grouped and shown to the Aborigines. For words where the linguists disagreed between the presence or absence of a full vowel, the Aborigines were asked individually to place them into one of the existing groups. (This did not duplicate the problems of Method 1 because no rhythm pattern was set up.) There was agreement. Table 6 lists the words in the suggested orthography.

APPENDIX

REVISION LESSON 10

ngarra_____ngina

arung_____kwa

naning_____ka

ma_____milya

a_____ma

yini_____ka

mang_____kwa

ami_____ngwa

_____nga

yi_____ngwa

nu_____ka

nga_____kinama

na_____ka

_____ma

_____nga

ngarriki_____ka

TABLE 1: DESIGN OF THE AUDITORY DISCRIMINATION TESTING

Original List

akarringa	akarrnga	teeth	3:8
alarrikbulala	alarrkbulala	thin	4:7
alyarrimur.da	alyarrmur.da	dark	2:9
alarringkawarriya	alarrngkawarriya	tatty	2:9
alyikarribilyirra	alyikarrbilyirra	slippery	1:10
ambarringarna	ambarrngarna	how many	4:7
amurrikbalya	amurrkbalya	soft	7:4
aringkiringkawura	arngkirngkawura	sometimes	5:15
awarriwalya	awarrwalya	shade	6:5
ayangkidirribura	ayangkidirrbura	level	2:8
ayarrimurra	ayarrmurra	arm	6:5
ayilibiyiliba	ayilbiyilba	scrub	0:10
ayirribiyirrba	ayirrbiyirrba	continuous	1:10
angkibarringwarringwa	angkibarrngwarrngwa	heavy	2:8
balimarna	balmarna	hat	10:1
darriyiba	darriba	slug	5:5
darriba	darrba	stingray	8:3
dimarringa	dimarrnga	cricket	7:4
dimirrimara	dimirrmara	sandfly	8:3
dimirrimala	dimirrmala	wind	8:1
mamirrikwura	mamirrkwura	rib	7:4
marribura	marrbura	scorpion	11:0
marringa	marrnga	night	9:2
mijirrikwudarrba	mijirrkwudarrba	pool	3:8
milarringkwa	milarrngkwa	berry	5:6
milyirrikwa	milyirrkwa	hibiscus	1:10
mulikwa	mulkwa	stomach	6:5
ngarrabuwarrikina	ngarrabuwarrkina	hide	4:8
ngarribarrikwudina	ngarribarrkwudina	go a little way	4:6
nidirriburakina	nidirrburakina	straighten	3:8
nijarridina	nijarrdina	finish	10:1
ngarrimurmuringkina	ngarrimurmurngkina	understand	8:3
niyirrimana	niyirrmana	swim	5:6
nanakarringina	nanakarrngina	get water	9:2
yambirrikwa	yambirrkwa	fish	3:8
yarrida	yarrda	rash	10:1
yarribuwa	yarrbuwa	cuttlefish	10:2
yarrikaliwa	yarrkaliwa	shell	9:2
yarrima	yarrma	fish	9:1
yarrimilya	yarrmilya	coral	10:1
yarringa	yarrnga	leech	10:1
yilarribanda	yilarrbanda	snake	2:8
yiliba	yilba	root	4:6

yimurringwa	yimurrngwa	prune	6:5
yinikarrika	yinikarrka	hawk	3:8
yirringa	yirrnga	we	10:1
yirrima	yirrma	gum	9:0

Supplementary List

adarriba	adarrba	short	0:9
amaringka	amarngka	laugh	1:8
aringkawa	arngkawa	wise	9:0
arrida	arrda	rash	7:2
arrikwara	arrkwara	worm	6:3
dirrikba	dirrkba	plover	8:1
arribilya	arrbilya	sickness	5:1
karriba	karrba	turtleshell	6:0
mangkarrikba	mangkarrkba	plum	2:6
marimba	marmba	palm	8:1
marinja	marnja	bees' eggs	4:5
marringmur.da	marrngmur.da	currant	8:1
marrikwurra	marrkwurra	fish	9:0
munginjarrikwa	munginjarrkwa	shell	6:3
murikwarringa	murikwarrnga	spear	5:2
yarrikwumarnda	yarrkwumarnda	shell	7:2
yikariba	yikarba	woomera	1:8
yilarriba	yilarrba	palm	0:9
yilikarinja	yilikarnja	shell	5:1
yilyikarrimur.da	yilyikarrmur.da	flyingfox	4:5
yimalyarribirra	yimalyarrbirra	shell	3:2
yimurribunga	yimurrbunga	shark	1:1
yimurriminya	yimurrminya	mussel	1:2
yingarribanja	yingarrbanja	limpet	1:4
yingkarima	yingkarma	skink	1:5
yinibarringinja	yinibarrnginja	gum tree	5:4
yirarringanja	yirarrnganja	paperbark	4:5
yirinjirra	yirnjirra	fish	2:7
yirimba	yirmba	seagull	4:3

N.B. The numbers shown in the final column were added after the tests were completed. These are the scores for the Aborigines, e.g. *akarrVnga* 'teeth' where 3 included the vowel and 8 omitted it.

NOTATIONS USED IN TABLES 2-5:

* the position of the vowel under discussion

Ø zero, where no vowel was written or inserted phonetically

( ) optional

both where the linguists recorded an absence of a vowel or an epenthetic

MP the vowel under discussion is at the boundary of morphemes

V a full vowel has been recorded, identified or written

Where the total number of responses recorded for a word exceeds the number of test participants, this indicates the word was used more than once in the tests.

TABLE 2: SCORES BASED ON METHOD 2

1. Control Words

	Aborigines		Linguists	
	V	Ø		
rr + stop				
wumarr*bina	1	5	V	V
narr*karrina	5	0	V	V
rr + nasal				
naniyarr*ngka	6	0	V	V
ngarrirr*ngkina	6	0	V	V
r + stop				
kwur*ba	8	0	V	V
r + nasal				
ar*ngka	6	0	V	V
ar*ngmarra	6	0	V	V
l + stop				
al*ka	6	0	V	V
angal*ba	8	0	V	V
l + nasal				
kwul*nga	6	0	V	V

rr + stop				
ayirr*biyirr*ba	1	11	ø	ø
murirr*ba	2	4	ø	ø
alarr*kbulala	1	5	ø	ø
amaburr*kwakbala	1	4	ø	ø
aringkwarr*kwa	2	4	ø	ø
dikwurirr*kwa	3	3	ø	ø
mangkarr*kba	1	5	ø	ø
mangkwurr*kwa	1	5	ø	ø
naningkangkwarr*ka	2	4	ø	ø
nawarr*ka	1	5	ø	ø
ningwarr*ka	1	5	ø	ø
niribarr*ka	2	4	ø	ø
ngarrarr*kinama	3	3	ø	ø
ngarrikilarr*ka	2	4	ø	ø
ngarrilarr*kbalkina	0	6	ø	ø
yinikarr*ka	1	5	ø	ø
rr + nasal				
akwularr*mbarrina	1	5	ø	ø
alirr*ma	2	4	ø	ø
malyirr*milya	2	4	ø	ø
nimularr*mbarrina	0	6	ø	ø
akiwabarr*ngwarr*ngwa	5	5	ø	ø
alarr*ngkwularrngkwala	3	9	ø	ø
amulirr*ngwa	2	4	ø	ø
arr*ngka	5	0	ø	-
r + stop				
abiyar*buwa	0	6	ø	ø
abiya(r)karbiya	0	6	ø	ø
naningkwar*ba	0	8	ø	ø
yikar*ba	2	5	ø	ø
r + nasal				
angar*mungkwa (MP)	0	8	ø	ø
ar*mbulirra	0	6	ø	ø
awar*mbuwar*mba	0	12	ø	ø
yilikar*mba	0	6	ø	ø
yir*njirra	0	6	ø	ø
amar*ngilyarra	2	6	ø	ø
ar*ngkawura	3	3	ø	ø
ar*ngkayiwaya	1	5	ø	ø
ar*ngkirra	3	3	ø	ø
marngkir*ngkiwilyarra	0	6	ø	ø

2. Problem Words

rr + stop			
nikwuyarr*baja	0	6	both both
wurriburr*ba	2	4	both both
dirr*kba	4	2	both Ø
yambirr*kwa	3	7	both Ø
rr + nasal			
alarr*mur.da (MP)	1	5	both Ø
yirr*ma	2	3	both Ø
akarr*nga	2	4	both Ø
marr*nga	3	3	both both
ngarrakarr*ngina	4	2	both Ø
yarr*nga	7	5	both Ø
yimurr*ngwa	2	4	both Ø
r + nasal			
mar*mba	0	6	both Ø
yir*mba	2	4	both both
mir*ngkirra	2	3	Ø both
yibur*ngkibur*ngkirra	0	8	Ø both

TABLE 3: SCORES BASED ON METHOD 3

1. Control Words

	Aborigines		Linguists	
	V	Ø		
rr + stop				
arr*bilya (MP)	5	1	V	V
darr*ba	10	0	V	V
karr*ba	6	0	V	V
marr*bura	11	0	V	V
marr*kwurra	9	0	V	V
munginjarr*kwa	6	3	V	V
nijarr*dina (MP)	10	1	V	V
yarr*buwa	10	2	V	V
rr + nasal				
yirr*nga (MP)	10	1	V	V
marr*ngmur.da	8	1	V	V

r + nasal					
ar*ngkawa		9	0	V	V
yilikar*nja		5	1	V	V
rr + stop					
adarr*ba		0	9	ø	ø
alyikarr*bilyirra	(MP)	1	10	ø	ø
ayirr*biyirr*ba		1	10	ø	ø
yilarr*ba		0	9	ø	ø
yingarr*banja		1	4	ø	ø
alarr*kbulala		4	7	ø	ø
arr*kwara		6	3	ø	ø
mangkarr*kba		2	6	ø	ø
mijirr*kwudarrba		3	8	ø	ø
milyirr*kwa		1	10	ø	ø
ngarrabuwarr*kina		4	8	ø	ø
ngarribarr*kwudina		4	6	ø	ø
yinikarr*ka		3	8	ø	ø
rr + nasal					
niyirr*mana		5	6	ø	ø
alarr*ngkawarriya		2	8	ø	ø
r + stop					
yikar*ba		1	8	ø	ø
r + nasal					
yingkar*ma		1	5	ø	ø
mar*nja		4	5	ø	ø
yir*njirra		2	7	ø	ø
amar*ngka		1	8	ø	ø
ar*ngkir*ngkawura		5	15	ø	ø
l + stop					
ayil*biyil*ba		0	10	ø	ø
yil*ba		4	6	ø	ø

2. Problem Words

rr + stop					
ayangkidirr*bura		2	8	both	ø
darr*ba		8	3	both	ø
nidirr*burakina		8	3	both	ø
yilarr*banda		2	8	both	ø
yimurr*bunga		1	1	both	both
yarr*da		10	1	both	both

arr*da	7	2	both	both
amurr*kbalya	7	4	both	Ø
dirr*kba	8	1	both	Ø
mamirr*kwura	7	4	both	Ø
yambirr*kwa	3	8	both	Ø
yarr*kaliwa	9	2	both	both
yarr*kwumarnda	7	2	both	Ø
rr + nasal				
alyarr*mur.da (MP)	2	9	both	Ø
ayarr*murra (MP)	6	5	both	Ø
dimirr*mara	8	3	both	Ø
yilyikarr*mur.da (MP)	4	5	both	Ø
yimurr*minya	1	2	both	Ø
yirr*ma	9	0	both	Ø
akarr*nga	3	8	both	Ø
ambarr*ngarna	4	7	both	Ø
angkibarr*ngwarr*ngwa	2	8	both	Ø
dimarr*nga	7	4	both	both
marr*nga	9	2	both	both
milarr*ngkwa	5	6	both	Ø
murikwarr*nga	5	2	both	Ø
nanakarr*ngina	9	2	both	Ø
yarr*nga	10	1	both	Ø
yimurr*ngwa	6	5	both	Ø
yirarr*nganja	4	5	both	Ø
rr + w				
awarr*walya	6	5	both	both
r + nasal				
mar*mba	8	1	both	Ø
yir*mba	6	3	both	both
l + stop				
mul*kwa	6	5	both	Ø
rr + stop				
yima(l)yarr*birra	3	2	V	Ø
rr + nasal				
dirr*mala	8	1	both	V
yarr*ma	9	1	both	V
yarr*milya	10	1	V	both
yinibarr*nginja	5	4	Ø	V

r + nasal				
ngarrimu(r)mur*ngkina	8	3	ø	v
l + nasal				
bal*marna	10	1	v	both

TABLE 4: SCORES BASED ON METHOD 4

1. Control Words

	Aborigines		Linguists	
	v	ø		
rr + stop				
arr*baja (MP)	5	0	v	v
naniwarr*bikina	4	1	v	v
nara ayakiwarr*bikima	4	0	v	v
warningwarr*birra (MP)	3	2	v	v
dakwarr*kwarra (MP)	3	2	v	v
marr*kwurra	4	1	v	v
nakbilyarr*kayina	4	1	v	
yingarr*kwulina	3	2	v	
rr + nasal				
naniyarr*ngka	5	0	v	v
yirr*ngakburrangina (MP)	5	0	v	v
yirr*(ng)wanja	5	0	v	v
mamurr*(nyi)nya	4	1	v	v
rr + w				
nikadirr*warnima	5	0	v	v
rr + stop				
akilyarr*ba	1	3	ø	ø
niwamburr*bijanga	0	5	ø	ø
yilarr*ba	0	5	ø	ø
dilarr*kbulala	0	5	ø	ø
nanirndirr*ka	0	3	ø	ø
rr + nasal				
nilarr*mburrana	0	5	ø	ø
yilarr*ngkwuwarra	0	5	ø	ø

r + nasal				
awar*mbuwar*mba	1	9	ø	ø
dimar*ngkambilyima	1	4	ø	ø
namar*ngkinama	1	4	ø	ø
l + stop				
maburambal*ba	1	4	ø	ø
wal*balbarrija	1	4	ø	ø
mal*dabirra	0	5	ø	ø
nara al*dadangima	1	2	ø	ø
2. Problem Words				
rr + stop				
mamalarr*birra	3	2	both	ø
ngarrikwuyarr*ba	1	4	ø	both
rr + nasal				
dimirr*mara	3	2	both	ø
nara akbikbarr*ngwuma	3	2	both	ø
yimurr*ngwa	1	1	both	ø
yimudirr*ngwa	2	3	both	
l + nasal				
bal*marna	5	0	V	both

TABLE 5: COMPARISON OF SCORES FOR THE SAME WORDS TESTED BY DIFFERENT METHODS

1. Control Words

	Method 2		Method 3		Method 4	
	V	ø	V	ø	V	ø
V recorded						
ar*ngkawa	6	0	9	0	-	-
marr*kwurra	9	0	-	-	4	1
naniyarr*ngka	6	0	-	-	5	0
V omitted						
alarr*kbulala	1	5	4	7	0	5
awar*mbuwar*mba	0	12	-	-	1	9
ayirr*biyirr*ba	1	11	1	10	-	-

mangkarr*kba	1	5	2	6	-	-
yikar*ba	2	5	1	8	-	-
yilarr*ba	-	-	0	9	0	5
yinikarr*ka	1	5	3	8	-	-
yir*njirra	0	6	2	7	-	-

2. Problem Words

Both or Ø						
akarr*nga	2	4	3	8	-	-
alarr*mur.da	1	5	2	9	-	-
dimirr*mara	-	-	8	3	3	2
dirr*kba	4	2	8	1	-	-
mar*mba	0	6	2	7	-	-
marr*nga	3	3	9	2	-	-
ngarrikwuyarr*ba	0	6	-	-	1	4
yambirr*kwa	3	7	3	8	-	-
yarr*nga	7	5	10	1	-	-
yimurr*ngwa	2	4	6	5	1	1
yirr*ma	2	3	9	0	-	-
yir*mba	2	4	6	3	-	-
V or Ø						
bal*marna	-	-	10	1	5	0

TABLE 6: SUGGESTED SPELLING

1. Words With Phonemic Vowels

Most of these words are from the Control group (a) but some problem words have been added. Group (d) words are marked ***.

rr + stop	rr + nasal
arribilya	yarrimilya***
darriba	
karriba	r + nasal
marribura	aringka-wa
marrikwurra	aringmarra
marringmur.da	yilikarinja
munginjarrikwa	
nijarridina	l + nasal
yarribuwa	balimarna***
wumarribina***	

2. Words Where The Epenthetic is not Emic and is Omitted

Some of these words are from the Control Group (b) but many others are added. Group (c) words are marked ** and Group (d) as ***.

rr + stop	rr + nasal
adarrba	akarrnga**
alarrkbulala	akiwabarrngwarrngwa
alyikarrbilyirra	akwularrmbarrina
amaburrkwakbala	alarrngkwawarriya
amurrkbalya**	alarrngkwularrngkwala
arrda**	alirrma
arrkwara	ambarrngarna**
a(wu)ringkwarrkwa	amilyirrngwa
ayangkidirrbura**	arrngka
ayirribiyirrba	ayarrmurra**
darrba**	al(y)arrmur.da**
dikwurirrkwa	angkibarrngwarrngwa**
dirrkba**	dimarrnga**
mamirrkwura**	dirrmala***
mangkarrkba	dimirrmara**
mangkwurrkwa	malyirrmilya
mijirrkwudarrba	marrnga***
milyirrkwa	milarrngkwa**
murirrba	murikwarrnga**
naningkangkwarrka	nanakarrngina**
nawarrka	nimularrmbarrina
nidirrburakina**	niyirrmana
nikwuyarrbaja**	ngarrakarrngina**
ningwarrka	yarrma**
niribarrka	yarrnga**
ngarrabuwarrkina	yilyikarrmur.da**
ngarrarrkinama	yimurrbunga**
ngarribarrkwudina	yimurrminya**
ngarrikilarrka	yimurrngwa**
ngarrilarrkbalkina	yinibarrnginja***
wurriburrba	yirarrnganja**
yambirrkwa**	yirrma**
yarrda**	
yarrkaliwa**	
yarrkwumarnda**	
yilarrba	
yilarrbanda**	
yima(l)yarrbirra**	
yingarrbanja	
yinikarrka	

rr + semi-consonant
awarrwalya**

r + stop
abiya(r)karbiya
abiyarbuwa
naningkwarba
yikarba

r + nasal
amarngka
amarngilyarra
angarmungkwa
armbulirra
arngkawura
arngkayiwaya
arngkirngkawura
arngkirra
awarmbuwarmba
marmba**
marnja
marngkirngkiwilyarra
mirngkirra**
ngarrimu(r)murngkina***
yiburngkiburngkirra**
yilikarmba
yingkarma
yirmba**
yirnjirra

l + stop
ayilbiyilba
mulkwa**
yilba

WORK PAPERS OF SIL-AAB
Series B Volume 12
December 1984

DIAGNOSTIC TESTING OF THE ANINDILYAKWA ORTHOGRAPHY FOR BOTH READING AND WRITING

Velma J. Leeding

0. INTRODUCTION

The purpose of this paper is to show the content and results of the tests set up to determine the viability of the Anindilyakwa orthography chosen by the Aborigines at Umbakumba, Groote Eylandt, Northern Territory.

The testing was done in April and May 1981, and examined and documented by August of that year. The author has been employed by the Department of Education, Northern Territory, as linguistic adviser for the Groote Eylandt bilingual program since 1974. A copy of the complete testing and marking, with tapes, is being filed with the Australian Institute of Aboriginal Studies, Canberra.

The paper consists of sections outlining the way the diagnostic tests were compiled and administered, the scores for both reading and writing, and the conclusions about the orthography based on those results. Even though the focus was on testing the orthography, the interpretation of other miscues was handled and is included in the paper in order to show that all errors have been covered. A list of linguistic notations and terms used in this paper is given in the first part of the Appendix.

0.1 HISTORY OF THE ORTHOGRAPHY DEVELOPMENT

In 1972, the linguist at Angurugu developed an orthography which was later taught to Teaching Aides in the Angurugu school by the literacy worker. In 1974, when I checked the literacy skills of these Aides working in the bilingual program, I discovered that there were constant errors in the spelling of the vowels and some consonants. The literacy worker's evaluation of the problem was that the course had been too fast and that more practice was needed. The orthography continued to be used in the Angurugu School but, again in 1976, the non-Aboriginal teachers in the bilingual program reported to me that the Aboriginal Teaching Aides still could not spell accurately and consistently and, therefore, were not really competent to teach vernacular literacy to the children. At that time, for this and other reasons, the bilingual program at Angurugu was suspended.

In 1975, I began teaching vernacular literacy classes with the Aboriginal Teaching Aides at Umbakumba, using the Angurugu primers. It was observed in 1976 that, after months of daily practice, the Aides could not spell the vowels and peripheral consonants with consistency. As a linguist, I found that, in applying the phonological rules as stated, I could not spell consistently within my own data or with that of the Angurugu linguist.

In 1976/7, the Aborigines at Umbakumba were encouraged to write whatever they felt was correct while I reconsidered the analysis. At the end of 1977, the orthography was revised in accordance with new linguistic insights after discussion with the Aborigines and the Angurugu linguist and literacy worker. It was known at that time that there were still residual problems in the analysis and that more work had to be done on it. The changes were instituted for both communities but the decision was partially rescinded at Angurugu six months later during my absence from Groote Eylandt.

Upon my return in 1979, the Department of Education ruled that the status quo, as of mid-1977, was to be used in both communities while further testing and analysis was done. It was, therefore, extremely difficult for the Umbakumba Aborigines to become consistent in any

orthography when two different ones were in circulation, viz. previously-printed school literature and teaching notes in the mid-1977 one, and church literature from Angurugu utilising some of the late-1977 modifications. Their own choice of orthography was discussed and practised for not more than one hour per week on a casual basis and almost no literature produced at Umbakumba. Some minor changes continued at Angurugu as the linguist revised her analysis.

Testing of different aspects of the orthography was done at Umbakumba between August 1980 and May 1981. The results of the final comprehensive test are examined in this paper. At a formal meeting in December 1981, nine literate Aborigines agreed to a limited amount of over-differentiation in the vowels in order to accommodate the Angurugu people. In all but possibly one instance, the literate Aborigines were correct in their perception of contrastive sounds. The residual problems in my phonological analysis were resolved in August 1981, largely due to insights gained in these discussions.

0.2 THE ORTHOGRAPHY

The language, Anindilyakwa, has a primary dichotomy of rounded versus unrounded in the consonants, and high versus low tongue height in the vowels.

The symbols have not changed since its inception in 1972 except for the use of 'k' instead of 'g' in order to give more contrast in the shape of words. The orthography utilises single graphs, digraphs and trigraphs, all of which are called graphemes in this paper. The choice of graphemes was based on those listed in Leeding and Gudschinsky (1974). The phoneme and grapheme equivalents are:

Phoneme	Grapheme
Stops:	
p, p^w	b
ṯ, t	d
ṭ	j
ṭ̣	rd
k	k
k^w	kw

Nasals:

m, m^w	m
n̪, n	n
ñ	ny
ṇ	rn
ŋ	ng
$ŋ^w$	ngw

Other consonants:

l̪, l	l
l̪̣	ly
l̤	rl
r̆	rr
r̤	r
y	y
w	w

Vowels:

i̤ [i, ɨ, u̟]	i, u
a [e, a, ɔ]	a

Spelling conventions reduce the number of letters in some consonant clusters or allow contrastive clusters to be represented in the orthography.

/ñt̪̣/	nj
/l̪t̪̣/	lj
/ṇt̤/	rnd
/rt̤/	r.d

A hyphen is used between the root/stem and suffix to break words into smaller parts and to facilitate sight recognition of recurring suffixes. An early attempt to place a hyphen between prefixes and the root/stem did not prove to be satisfactory. The Aborigines had to be able to handle word-derivations before being able to apply the spelling convention. There seems to be, however, an innate ability to recognise the suffix as optionally added to the basic part. For this reason the

hyphen is not used on verbs which have obligatory suffixation.

There is under-differentiation in the consonants, viz. one symbol is used for each pair of alveolar and dental phonemes because one of each pair has a low functional load or occurs mainly in loan words; and one symbol has been used for each pair of rounded and unrounded labial consonants because most of the Aboriginal literates felt it was too late to change (some people who read only by sight might be upset). The Angurugu and Umbakumba orthographies both use these symbols but the Angurugu linguist does not have the rounded labials as contrastive in her analysis.

In all other cases there is a one-to-one correspondence between the consonant phoneme and the grapheme. Ease of transition into English is maximal given the difference in the structures of the languages and their phonetics.

There is over-differentiation in the vowels. The allophone [u̟] was retained because the Aborigines were seeking a compromise with the Angurugu orthography where /u/ is considered to be phonemic. They felt that, with their experience in speaking and writing English, they could cope with writing /ɨ/ as 'u' in a restricted environment. They chose to write 'u' within the syllables, i.e. following /m^w, p^w, k^w, $ŋ^w$, w/ as 'mu, bu, kwu, ngwu, and wu' respectively. The one exception to this rule was to write 'i' between /w/, /m^w/, /p^w/ and a following /y/. I felt that, as these syllables were all said in isolation in the phonics method used, the literates would pronounce them as [u̟] and be able to write them. The grapheme 'i' was to be written in every other position.

0.3 SPECIFIC DIFFERENCES IN THE TWO ORTHOGRAPHIES

Differences occur in the way the symbols are used for rounded velar consonants, the vowels 'i' and 'u', and lengthened vowels. The Angurugu orthography also uses 'e'.

Rounded velars

The Angurugu linguist (personal communication) regards [k^wu̟] and [ku], [$ŋ^w$u̟] and [ŋu] as non-contrastive with /k^w/ and /$ŋ^w$/ as the consonant phonemes. The allophones 'ku' and 'ngu' are, however, represented in the orthography: 'ku' and 'ngu' are written preceding a rounded consonant and 'kwu' and 'ngwu' elsewhere.

At Umbakumba both Aborigines and linguist prefer only the use of 'kw' and 'ngw' where they are emic units. It not only prevents over-differentiation but gives consistent representations of the roots at morphophonemic boundaries—an advantage pedagogically and requested by non-Aboriginal teachers.

The two orthographies compare as follows:

Phonemic	Umbakumba	Angurugu	
ayakwa	ayakwa	ayakwa	'speech, language'
ayakwɨ#l̪aŋwa	ayakwu-langwa	ayakwu-langwa	'about the language'
ayakwɨ#wa	ayakwu-wa	ayaku-wa	'to the language'
ayaṙka	ayarrka	ayarrka	'hand'
ayaṙkɨ#l̪aŋwa	ayarrki-langwa	ayarrki-langwa	'from the hand'
ayaṙkɨ-wa	ayarrki-wa	ayarrku-wa	'to the hand'

A similar phonological feature is realised with the syllables [$k^{w}a \sim k^{w}ɔ$] and [$ŋ^{w}\ a \sim ŋ^{w}ɔ$] at morpheme boundaries where only the second occurs phonetically. Rounding of the consonant is simultaneous with the velar articulation and many non-native speakers do not hear it. The Aborigines, however, are aware of it. The 'w' is written at Umbakumba but not at Angurugu.

Phonemic	Umbakumba	Angurugu	
a#l̪aṙŋkwɨ#aṙakpɨ#a	alarrngkwarrakpa	alarrngkwerekpa	'outdoor things'
[al̪aṙŋkweṙekpa]			
a#l̪aṙŋkwɨ#awaṙɨyɨ#a	alarrngkwawarriya	alarrngkawarriya	'bad things'
[al̪aṙŋk^{w}ɔ waṙiya]			

Low vowel [e]

The short vowel [$e \sim æ \sim e^{i}$] is written consistently as 'a' at Umbakumba because both the Aborigines and the linguist do not regard it as a contrastive sound. The three vowels are in mutually exclusive distribution or in free variation with [a]. The front allophones are contiguous to a lamino-palatal consonant or precede an underlying [Ci].

In the Angurugu analysis, the vowels are seen as shared allophones of the phonemes /a/ and /e/ as well as in phonemic variation. In the orthography only one symbol is chosen in each word in the literature: 'a' preceding palatals where it is more statistically frequent than 'e' and is considered the phoneme (about six words are seen as exceptions); 'e' in environments where it is more statistically frequent than its variant (but Aborigines are not corrected if they write 'a' before /ṙ/); 'e' where only that variant occurs. The aim of these rules is to make the use of 'e' as numerous as possible.

High vowel [u]

At Umbakumba the high vowel [u] is regarded as an allophone of /ɨ/ occurring contiguous to rounded consonants and often in free variation with [ɨ]. In order to compromise with Angurugu, the Aborigines decided that 'u' should be included to a limited degree. It could be written within the syllable where the preceding conditioning consonant co-ocurred but not used elsewhere, viz. 'mu' for /m^{w}ɨ/; 'bu' for /p^{w}ɨ/; 'kwu' for /k^{w}ɨ/; 'ngwu' for /ŋ^{w}ɨ/. In other environments where the conditioning consonant from the following syllable would be dropped in auditory discrimination techniques, the vowel would be written as 'i'. There was one exception to the rule, viz. 'wi', 'mi' and 'bi' would be written preceding 'y' in the next syllable.

The rules are feasible but I predicted problems with the exception because the rounding which is not marked on the labial consonants would be omitted also on the vowel and contrasts with /mɨ/ and /pɨ/ thus removed. There are also places where a clear phonetic [i] occurs in variation with [u] preceding other lamino-palatals in syllables with rounded velars. It was thought that their expertise in English phonics would be helpful but it seemed to me to be likely to produce greater problems.

The Angurugu linguist regards both /u/ and /i/ as phonemes but allows for restrictions in their distribution. The sounds are said to be contrastive only on the basis of a few analogous pairs. The orthography reflects the analysis, viz. 'i' is written between two unrounded consonants where only unrounded allophones can occur; 'u' contiguous to a rounded consonant; 'u' or 'i' where they are considered to be contrastive. Apart from the few analogous pairs, the crucial difference is the writing of 'u' preceding a rounded consonant, e.g. Umbakumba: *arima* 'big'; Angurugu: *aruma* 'big'. Because of suffixation this is statistically very frequent.

Lengthened vowels

In a small number of words, lengthened vowels sometimes occur in variance with another form, e.g. /yakaya/ ~ /yakayi/ [yaka^{i}ya ~ yaka^{i}:] 'ouch!'. Stress normally falls on the penultimate syllable and, in line with the above, a lengthened [i:] in a word-final stressed position is interpreted as 'iyi'. At Angurugu, [a^{i}: ~ e^{i}:] is written 'ayi' but [i:] as only 'i'.

Word-medially, VCV sequences where the consonant is 'y' or 'w' reduce to a long or short vowel. At Umbakumba, both options are recognised in the orthography but at Angurugu only the longer, more traditional form is placed in literature.

Apart from the above, there are a few words where [e^{i}] is optionally lengthened in a stressed syllable or to suit the sentence rhythm. Umbakumba Aborigines were uncertain as to whether these should be written as 'a' or 'ayi'. In the tests, the two options are inserted on a random basis. Angurugu uses 'e'. After the tests were administered the glide was found to be an allophone of /a/, conditioned by a following deep structure [Ci] which frequently elides in the surface form.

0.4 THE TEACHING METHOD

Anindilyakwa words are long, averaging between three and six syllables but up to fourteen syllables. There is also a very complex pattern of prefixation and suffixation which produces several hundred prefix combinations on verbs. Similarly, other word classes (parts of speech) can take up to forty-three changes of prefixes. Because of this complexity, it is essential that Aboriginal literates develop competency in using phonic skills. Eventually, like all readers, common words and affix combinations are read by sight.

The teaching method was based on the reading scheme proposed by Gudschinsky (1973) which uses both "look and say" and phonics methods. The system has been revised to suit this particular language and a new Adult Literacy Course designed in 1980. Gudschinsky accepts the syllable as the smallest phonological unit which can be isolated naturally by native speakers of a language. In Anindilyakwa, vowels are isolated in phonics drills but not the consonants. The latter is taught by contrast and negative focus. The phonic value of each grapheme is thus learnt.

The initial formal literacy course for adults takes approximately forty hours to cover all graphemes in all positions in the word and to enable the literates to write a short story independently. Wherever possible, an unstructured advance course is held to give revision in areas which seem to be difficult for all literates.

All Aborigines at Umbakumba under forty years of age can read English but ability varies greatly. Some can operate the phonic rules for writing. There are Aborigines who have taught themselves to <u>read</u> Anindilyakwa by applying the rules for English phonics but these people do not write Anindilyakwa except by finding the words in existing literature and copying them. Facility in reading seems to depend on the correct assignment of phonic values to the consonants and recognising a high versus a low vowel. For example, as they cannot distinguish the vowels in 'man' and 'men' phonetically in English, they tend to ignore the difference in graphemes in Anindilyakwa. These Aborigines are not

considered to be fully literate and are not included in statistical counts of literates in the community.

1. CONTENT AND DESIGN OF THE TESTS

The tests are based on information gleaned from books and articles, and from discussions with other linguists and teachers. The Principal, Mr. Peter Clarke, and two teachers at the Umbakumba School, Miss Lorraine Fischer-Johnson and Miss Barbara Marugg, have been extremely helpful.

Suggestions for the diagnostic testing of English phonics have been closely followed. The amount of testing, however, has had to be adapted to suit this particular situation where the language structure is vastly different and the focus is on the viability of the orthography rather than the competence of the literate. The tests were designed to see if the literates could handle their own choices of orthography with consistency and accuracy. While different levels of competency were expected, it was hoped that a general over-all pattern would be seen.

Even though there is a wide range of literature on tests for reading, very little seems to have been written on testing writing. Writing tests in Anindilyakwa followed the same ideas as for reading. Both lists of words and stories were used—the former gave no contextual clues while the latter did. As an orthography is only really tested by the literates applying phonics skills, lists of words which had not been seen before were essential. There was no way to evaluate with certainty whether the words written in stories resulted from the use of phonics skills or from memorisation.

1.1 READING TESTS

The reading tests were divided into two sections: (a) reading lists of words with no contextual clues; and (b) reading stories with contextual clues.

The layout was designed to give an uncluttered appearance because a heavy block of the long Anindilyakwa words looks rather formidable. The Reading Lists were placed in two columns; the stories had fairly short lines with hyphens used only where they occur in a word as part of the orthographical system. Too much hyphenation at the end of lines is known to cause problems in reading fluency. All pages were double-spaced.

(a) Reading Lists (words)

The Reading Lists contained words from all word classes (parts of speech). List 1 had 61 words, List 2 had 42 words, and List 3 had 53 words, thus making a total of 156 words. (See Appendix: 'Worksheets for Reading Lists'.)

The words used in these tests had not, generally speaking, been used in teaching and testing previously. There were, however, a few common words included to give the reader confidence, to restore confidence after some particularly difficult words, or to ensure that some rare graphemes were tested.

In English diagnostic testing the availability of short words allowed for a concise number of occurrences for each grapheme. This could not be as concise in Anindilyakwa because of the long words and very low frequency of some graphemes. In order to get five occurrences of each (except 'rl' which occurs in only one word) common graphemes had to be multiplied unnecessarily. Frequency counts for consonants and vowels are shown in 'Reading Lists: Statistical Frequency of Graphemes' (see Appendix). The entry of graphemes in syllabic units proved to be the quickest for cross-reference of allophones. Open syllables are tabulated alphabetically but only consonants counted. Consonants closing a syllable and vowels which alone comprise a syllable are shown separately.

Reading List 1:

The words contained only open syllables (CV) which are the easiest to read. An attempt was made to have at least three occurrences of each grapheme but it proved to be too unwieldy and some were left for other lists. This was the easiest test.

Reading List 2:

This list contained mostly words with open syllables but also some with closed syllables or rarer consonants, such as retroflexes. Closure of syllables and series of consonants, not the length of words, cause the most difficulty in reading. This test is harder than the first one.

Reading List 3:

Each word contained at least one closed syllable, sometimes two. The reading of the consonant clusters is more difficult where digraphs and trigraphs occur. Some epenthetic vowels were written but this helps rather than hinders reading fluency because it breaks up the consonant

clusters. This was by far the hardest test but, if handled satisfactorily, indicates that the reader can cope with the whole orthographical system.

(b) Stories for reading

Four stories were prepared for testing, none of which had been read before by those tested. Stories 1, 2 and 4 were not generally known but Story 3 is one of the best known Yantarrnga stories. None of those tested had heard the particular version used for testing. (See Appendix.)

Story 1 was told by Mr. Gula Lalara and recorded on cassette by Mrs. Katie Herbert. Story 2 was told and recorded by Mrs. Maria Yantarrnga, Story 3 by Mrs. Tapinkanga Yantarrnga, and Story 4 by Mr. Gula Lalara. There are a few instances where the recording and the script prepared for testing are not identical.

Story 1:

The story was taken from an Angurugu booklet which has not been circulated at Umbakumba. It was selected because it was relatively easy to read, was in the popular conversational style for story-telling, and had a predominance of words with the controversial high vowels, 'i' and 'u'. The first half of the story was written in the Umbakumba orthography and the second in the Angurugu orthography (as in the original). The reader's ability in using the two orthographies could thus be evaluated. The context was established in the Umbakumba orthography.

Story 2:

This story was very short but contained several difficult words. No paragraphing was used because the Aboriginal literates usually do not paragraph when writing stories. It is traditional but known by only a few of the older people.

Story 3:

This story was probably the hardest to read because it was concise with very little repetition of words. Some words were probably not well known. It had a wide range of consonants and closed syllables as well as quite a number of long verbs. From this story it should be apparent as to whether or not the ends of words were being decoded.

Story 4:

The story is incomplete but left at a natural cut-off point. It was chosen because it had quite a number of words with the controversial 'a' versus 'e'. The first part was written retaining the Angurugu orthography while the second part used the Umbakumba orthography. This was in reverse order to Story 1. The emphatic suffix, *-ayika*, is also controversial and was written in four possible ways because of the indecision which has surrounded it, viz. *e-ka*, *-ayika*, *'ayika* and *a-ka*. While all these possibilities have been discussed at Umbakumba, the last two have not previously been used in teaching.

1.2 WRITING TESTS

The tests were divided into two parts: (a) writing a list of words; and (b) writing four short stories. Such testing allowed the literates to choose their own vocabulary, i.e. the words they write frequently or choose to write, but also required them to write words controlled by the person setting the tests. Many of these controlled words would not have been seen before in their specific affixed form, and provided the ideal data for evaluating the viability of the orthography.

(a) Word lists for writing

The words were not common in reading material at Umbakumba and have not been used regularly in teaching and testing. This meant that some uncommon constructions were used and these gave difficulty to the younger literates. A few common words were included to bring about or sustain confidence.

There were three writing lists: List 1 had 30 words; List 2 had 40 words and List 3 had 30 words, making a total of 100 words. Each list was read onto cassette tape by Mrs. Katie Herbert, without the linguist reading the words to her. The linguist was present to ensure a good recording and to check that each word was correctly read. The words were said only once but were spaced to the count of three (which accounts for the whispering on the tape).

The statistical frequency of each grapheme was counted to ensure that each was adequately tested. The goal was five occurrences of each but this could not be attained without greatly increasing the number of words. The 'Statistical Frequency of Graphemes' and 'Worksheets for Writing Lists' charts were compiled in the same way as those for reading tests. (See Appendix.)

Writing List 1:

This list had words with all open syllables and was the easiest test.

Writing List 2:

The words contained mostly open syllables but some closed syllables (CVC or CVCC) were included. Rarer graphemes were used also. The greatest problem is in writing the consonant/s that close/s syllables. Anindilyakwa words end only in a vowel and a lot of practice in auditory discrimination exercises is needed to overcome writing errors.

Writing List 3:

All words included at least one closed syllable, sometimes two. The test was really difficult and any person handling it well is competent in handling the whole orthographical system.

(b) Writing of stories

Four stories were to be written, between half to a full page of an exercise book. The first two stories to be written were sets of sequences of picture cards made by non-Aboriginal teachers. The last two stories were to be written from large colour photos taken from sets supplied to the school. Topics chosen were well known and were selected because words with controversial graphemes would have to be written. The topics were: a turtle and a dog; a man on a fishing expedition; a group of desert Aborigines sitting around a fire; and a stockyard scene.

As the choice of vocabulary could not be controlled, either phonics skills or memorisation could be used by the authors. Changes to the spelling of common words, however, are significant if they are systematic and not just random error. There appeared to be no way in which these tests could be controlled to remove the variables in creative writing.

The stories were later read onto cassette tapes by Mrs. Katie Herbert for the following reasons: (a) to show that another Aboriginal literate could read what had been written even though it hadn't been seen before; (b) so that other linguists could hear the spoken form along with the written.

2. ADMINISTRATION OF THE TESTS

2.1 PERSONS TESTED

Discussions about orthography changes had been limited to about ten people who had enough competence and confidence to handle the situation. The common practice for orthography testing is to keep the initial group small, usually not more than ten. It is the workability of the phonics system which needs to be tested, not how many people can use it or like the individual symbols. There is no one at Umbakumba under 40 years of age who is monolingual.

The original aim was to test five out of the ten literates initially taught in the Angurugu orthography but subsequently exposed to all changes, and five new literates taught only the final Umbakumba choices. The latter, however, did not finish the literacy course in time for the Education Department deadline. The men in the community were happy to relegate the testing and final decisions to the women involved. The following is a brief description of those tested, with the first names changed to prevent any embarrassment.

Carla Mamarika: aged 25 years, previously employed as a Teaching Assistant but now employed in the administrative offices. She was involved in discussions after completing the literacy course in 1977, and in casual practice and testing during 1980 and 1981. Her skill was used in the post primary classes and in the church.

Heather Mamarika: aged 26 years, employed as a Teaching Assistant but at Batchelor College for teacher training in 1981. She was in the first literacy class in 1975 and involved in requests for changes since then (especially the using of the shorter forms 'ku' and 'ngu' for rounded velar consonants). Heather has continued teaching the vernacular aspects of the bilingual program in the pre-school, and in story-writing and artwork.

Maxine Mamarika: aged 37 years, formerly employed as Infants 1 Teaching Assistant and as a literacy worker in the bilingual program. She completed the Literacy Course in 1976 and later taught vernacular literacy to the school children; she produced a prolific amount of stories and translations for the school. Her fluency in reading was utilised in the church services. She continued with casual testing and practice up until 1980.

Roberta Yantarrnga: aged 26 years, employed as a Teaching Assistant in the infants classes. Having completed literacy training in 1975, she taught vernacular literacy to the school children, and prepared

supplementary teaching materials as well as writing stories. She is probably the most interested in understanding the structure of her own language. Roberta was not involved in the 1980 discussions but joined in again in 1981.

Sophia Bara: aged 24 years, employed as a health worker in the local government clinic. She completed the literacy course in 1976 when employed as a Teaching Assistant. She has continued to write or translate articles on health and to record the Aboriginal names on birth certificates. In 1980 and 1981 Sophia assisted me in teaching literacy to other health workers and took part in discussions and in casual testing. (She took the current test after leaving hospital and was still not really well.)

2.2 ADMINISTERING THE TESTS

Instructions were written in English but explained to the testees, all of whom were bilingual and competent in recording on cassettes. An example of the instructions is as follows:

Reading Stories 1 to 4

1. You can read the stories in any order you like but the first one is the easy one.

2. Read the story once through to yourself.

3. Put "Story No. . . ." on the tape and read the story right through. If you cannot read a word, say the syllables out loud.

4. Do the same for each story.

It became obvious during the compilation of the tests that I would need to administer one in order to check that instructions were clear and the content suitable. I tested Heather Mamarika. Though the tests were not changed, some problems were observed.

(a) Problems in the reading tests

Despite the care taken in choosing vocabulary, some words were not known—three in List 1, one in List 2, and three in List 3. Numerically it is not great but Heather's confidence was lowered to a considerable degree after each failure to decode a word. Aborigines suffer "loss of face" (a sense of shame) very acutely when mistakes are made. Recording

the words meant that a permanent record was available containing the errors. The shyness and insecurity was apparent in whispered speech and slow hesitant reading which was not normal. The words were retained because it was anticipated that others would know them.

In stories where a difficult or uncommon word occurred in the first sentence and could not be decoded quickly, confidence was lost. It was only restored after a couple of sentences in which contextual clues made the meaning apparent.

(b) Problems in the writing tests

No problems occurred in the writing of short stories. Heather did these by herself at home. Literates are used to this activity and are confident in doing it.

The main problem arose with the use of the cassette for recording the lists of words for writing. Although the words were carefully and clearly pronounced, the initial consonants were hard to hear and another prefix was sometimes substituted. These initial consonants are all common and were not crucial in the final analysis.

The best way to have conducted this part of the test would have been to have a "live" speaker present the words. Because testing had to be done when testees were available, this was not possible at this time. The other alternative would have been to include the English meaning but this would have added another variable, viz. the degree of proficiency in English.

The other testees were only given the Instructions Sheets which were explained to them, and all necessary paper, pencils and cassettes. Each one completed the tests and operated the equipment alone. The locale and other details are shown on the following chart.

Testee	Locale	Instructions explained by	Approximate time taken
Carla	school office	L. Fischer-Johnson (Deputy Principal)	3 hours in two sessions
Heather	school staff room and at home	V. Leeding (Linguist)	4½ hours in three sessions
Maxine	home	V. Leeding	3 hours in two sessions

Roberta	school office	L. Fischer-Johnson	2½ hours in two sessions
Sophia	clinic room and at home	V. Leeding	2½ hours in two sessions

3. MARKING THE TESTS

The tests were compiled to check the viability of the orthography, not reading comprehension. The marking, therefore, focused on the application of phonic skills in reading and writing. The margin of error allowable within the framework of a viable orthography is not known. Marking was certainly not a simple procedure.

The marking was done by Mrs. Katie Herbert, an Anindilyakwa speaker, and myself as linguist. It was felt necessary to have the tests checked by a native speaker of the language who was also literate. As Mrs. Herbert helped with the setting up of the tests, she was the obvious one to assist in their marking. If there was a difference of opinion her decision was final.

3.1 THE READING RECORD

Identification of reading errors was based on the criteria below. Every care was taken to be consistent.

The following miscues were considered to be errors:
- ... omissions and insertions
- ... repeated errors were counted as an error each time
- ... a different grammatical form of the word, i.e. a change in the prefix or suffix
- ... a word read wrongly by sight or because of the context
- ... general visual discrimination miscues

The following miscues were NOT considered to be errors:
- ... self-corrections
- ... acceptable variations of the same word, e.g. an alternative phonetic form; the short form; a longer precise form; an alternative form because of rhythm/timing. Literates were taught to read what was there but to use their own norm when reading aloud.
- ... unknown words
- ... epenthetic vowels, either inserted or omitted (these were evaluated in separate tests)

Words obviously erased from the tapes were counted as errors in word scores but it was later deemed fairer to exclude these for the particular testee in the syllable scores. Where one word was substituted for another, the number of errors was in accordance with the number of syllables in the original. A check was made after the tests to determine the unknown words. (Where a language has short words such detailed planning would not be necessary.)

The notational key is given below (excluding symbols listed in the Key in the Appendix) for those setting up similar testing.

correct response	no marking in the stories, ticked in the lists
wrong response	written above the typed copy
omissions	circled
insertions	marked by a caret and inserted above the typed copy
self-corrections	sc with an arrow to the point of correction
#	not a word
?	hard to hear
< >	unknown word

Footnotes on each page, cross-referenced to incorrect responses, described the nature or meaning of each error to facilitate later collation.

3.2 THE WRITING RECORD

The evaluation of errors was the same as for reading except for an additional instance where the low vowel written before a suffix was not counted as an error. Phonological rules apply at these boundaries giving alternative forms.

All hand-written material needed to be typed before being marked so that the system could be consistent with that for reading tests. The darkest impression was considered to be the final choice where letters were over-written.

4. TEST SCORES

In the testing of reading ability in English, scoring usually involves counting word errors. This method, however, is not detailed enough for the long words in Anindilyakwa. In addition, it was the adequacy of the phonic skills in relation to the orthography that was being tested. The basic isolatable unit for pronunciation is the syllable which, given the high percentages of accuracy in reading and writing, was suitable for estimating percentages of accuracy.

When the tests were set up, statistics were tabulated in relation to the consonants, either initial or final in the syllable, and the vowels. To present the results in these terms proved to be too time-consuming and of little real value. Errors in syllables were counted and the percentage of accuracy ascertained. (Had percentages been calculated on the grapheme, the percentages of accuracy would have been even higher).

4.1 READING SCORES

The percentage of accuracy in reading the syllables is shown on Table 1. The percentages are shown for each testee and are based on the total number of errors, omissions or insertions.

TABLE 1
Percentage of accuracy in reading syllables

Testee	Lists	Stories	Average
Maxine	96.7%	98.4%	97.6%
Roberta	96.8%	97.0%	96.9%
Sophia	95.2%	98.1%	96.7%
Carla	93.0%	96.1%	94.6%
Heather	91.8%	95.2%	93.5%

While the percentages of accuracy in words did not show a realistic picture of accuracy, Table 2 gives the figures for those who might be interested in the comparison.

TABLE 2

Percentage of accuracy in reading words

Testee	Lists	Stories	Average
Maxine	91.1%	94.7%	92.9%
Roberta	91.7%	90.9%	91.3%
Sophia	90.0%	94.9%	92.0%
Carla	81.8%	92.2%	87.0%
Heather	77.6%	88.1%	82.9%

Note that the disparity in the percentages of accuracy for words versus syllables is greater for the less competent reader.

Two different orthographies were used in Stories 1 and 4. The speed of reading and correct intonation patterns indicated that both were read satisfactorily with comprehension. The focus of scoring was placed on the percentage of accuracy, again based on syllables as the more reliable estimate. Table 3 lists the percentages of accuracy in each orthography.

While in six cases out of ten the Angurugu orthography to which they had been exposed the longest had a slightly higher percentage of accuracy, the differences are negligible. The overall average scores are: Angurugu orthography 97.4%; Umbakumba orthography 97.9%.

TABLE 3

Percentage of accuracy for each orthography estimated in syllables

Testee	Story 1		Story 4	
	Ang.	Umb.	Ang.	Umb.
Maxine	100.0%	98.2%	100.0%	97.9%
Roberta	98.2%	97.9%	97.6%	99.0%
Sophia	99.1%	98.7%	98.8%	97.2%
Carla	97.3%	98.7%	98.2%	96.6%
Heather	97.3%	97.9%	87.0%	96.5%
Averages	98.4%	98.3%	96.3%	97.4%

For those who are interested in seeing the percentages of accuracy in the two orthographies according to a statistical count of words, these are presented in Table 4. The average scores for the Angurugu orthography were 94.6% and for the Umbakumba one, 93.4%. While the higher one reverses in this scoring, the percentages are still almost equal.

TABLE 4

Percentage of accuracy for each orthography estimated in words

Testee	Story 1		Story 4	
	Ang.	Umb.	Ang.	Umb.
Maxine	100.0%	95.7%	100.0%	95.9%
Roberta	96.7%	91.4%	93.8%	95.9%
Sophia	98.3%	96.9%	96.9%	89.0%
Carla	95.0%	96.7%	96.9%	91.7%
Heather	93.3%	94.2%	71.7%	90.4%
Averages	96.7%	94.0%	91.9%	92.6%

The number of syllables and words tested for each orthography was not equal. In Story 1, the testing in the Angurugu orthography was for 60 words (215 syllables) and for Umbakumba 86 words (380 syllables); and for Story 4, 32 words (168 syllables) and 72 words (284 syllables) respectively. The variable occurred because the focus overall was on examining the viability of the Umbakumba proposals.

4.2 WRITING SCORES

The percentage of accuracy in writing syllables in both lists and stories is shown on Table 5, based on the total number of errors, omissions and insertions.

TABLE 5

Percentage of accuracy in writing syllables

Testee	Lists	Stories	Average
Roberta	87.0%	89.1%	88.0%
Sophia	81.7%	86.0%	83.9%
Maxine	80.7%	86.0%	83.4%
Carla	82.0%	85.5%	83.3%
Heather	80.1%	82.6%	81.4%

The percentage of accuracy in words is shown on Table 6 for those interested in the comparison.

TABLE 6

Percentage of accuracy in writing words

Testee	Lists	Stories	Average
Roberta	50.0%	68.1%	59.5%
Sophia	42.0%	56.5%	49.3%
Maxine	42.0%	54.5%	48.3%
Carla	37.0%	54.4%	45.7%
Heather	31.1%	47.7%	39.4%

Note that, as in the reading, the disparity in the percentage for writing syllables versus words is greater for the less competent.

5. INTERPRETING THE SCORES

5.1 READING

The average percentages of accuracy in reading syllables (Table 1) range

between 97.6% and 93.5%, indicating that all those tested were competent readers. Such high percentages also indicate that, for reading, both orthographies are adequate. The viability of both orthographies is attested as per Table 3 which shows that overall average percentages have a difference of only .5%.

All the usual reading devices appear to have been used by all readers, i.e. sight word and phonic attack skills, self-correction techniques, meaningful substitutions, and guessing based on comprehension of what has already been read.

If reading comprehension and accuracy were the only aims of testing, the above information would be sufficient. In evaluating the viability of the phonetic alphabet itself, closer attention must be given to individual graphemes, especially those that are controversial. The interpretation of the scores covers all graphemes.

5.1.1 CLASSIFICATION OF READING ERRORS

In order to investigate the nature of the reading errors, each person's errors were divided into seven categories, as shown below. All errors were listed in syllables because the combination of consonant and vowel is more relevant than the word to issues of orthography. Syllables containing two errors were listed twice.

(i) incorrect calling of graphemes
(ii) methathesis/reversal of graphemes or syllables
(iii) omission of one syllable when two syllables have the same initial consonant
(iv) omission of a reduplicated morpheme which usually alters the grammatical meaning, e.g. intensifier
(v) substitution of another grammatical form, e.g. pronominal prefix, aspect-changing suffix
(vi) substitution of one word for another
(vii) error/omission/insertion because a preceding syllable had been called wrongly

In Categories (ii) to (iv), errors were probably due to a lack of concentration or because of tension, having been read correctly but called incorrectly. All errors produced a more common word. Metathesis and the deletion of the first of two similar syllables are features of the language but only in some phonological environments. There is also a tradition where "reading" of bark paintings is from right to left but, as reversal errors are minimal, this is not likely to be the cause of error.

Category (v) lists errors where not enough attention has been given to the beginning or the end of a word. Substitutions usually made sense but were not what the author intended. Initially in literacy classes, adults did not read for meaning but the tests show that this problem is now overcome.

Category (vi) errors were largely due to guessing from the context. A more common sight word of similar shape was called, a meaningful word substituted where a difficult one could not be decoded quickly, or a grammatical word anticipated incorrectly, e.g. *mijiyalya* 'beach' for *miyalkwa* 'low tide'; *arakba* (action accomplished) for *kambirra* (action accomplished so that another can take place).

Category (vii) lists syllables changed to create a meaningful word. A preceding syllable was called incorrectly, necessitating further change, e.g. *ayakwa* 'word' for *-ayika* (emphatic).

5.1.2 DISCUSSION OF READING ERRORS

Category (i) is the only one where errors can be positively identified as relating to the testing of specific graphemes. In the other categories, the required graphemes were omitted, were correct but reversed, or were changed completely with the substitution of morphemes or words.

The problems observed in Category (i) are as follows:

(a) grapheme substitutions: palatal, dental or alveolar consonants (9 errors out of 275+)

The graphemes 'ly' and 'ny' were read as /l/, /n/ or /y/. There is a structural reason for difficulties in this area: communilect and ideolect variation occurs between /ly/, /l/ and /y/, and /ny/ and /y/. Some people use both variants in some words and others only one. In literacy classes, the Aborigines were taught to read what is written but to pronounce it according to their own norm. In the majority of Anindilyakwa words, only one or the other occurs.

In some cases, the problem was due to residual insecurity because of the structure or because a digraph was involved and only part of it read. Errors were at a minimum, indicating that teaching method has coped with the problem and that the graphemes were read satisfactorily.

(b) digraphs: retroflexed and flap consonants (8 errors out of 690+)

Digraphs were occasionally read as either another digraph or a cluster

of two consonant graphemes. The occurrences where 'rd', 'rn', 'rr' and 'r' were called incorrectly as 'nd', 'rd', 'rr', 'rn' or 'r' indicate problems in visual discrimination of similar digraphs. The increased tension under testing probably accounts for the minimal number of errors that were made.

(c) syllable closure: consonants (13 errors out of 420+)

The reading of the consonant graphemes closing syllables caused the most difficulty to the most number of testees. The problem is caused by the structure of Anindilyakwa where all words end in an open (CV) syllable and lies in the ara of auditory discrimination. It has been observed in literacy classes that, when the auditory skill is mastered, both reading and writing are satisfactory.

Nearly all errors produced a more common word or a change in the grammatical prefix. The consonants involved were homorganic nasal plus stop, e.g. 'nd', 'ngk' or 'ngkw', and to a lesser extent 'r' and 'rr'. In some cases only the first consonant was read but not those following.

It was difficult to determine whether some errors were related to digraph complexity or syllable closure, e.g. *ningi* 'I' versus *ningki* 'you'. As homorganic clusters caused major problems in early literacy, they were taught to one class as units for auditory discrimination. Structurally there is good evidence to consider them as complex units and some Aborigines, particularly men, view them as such. The language, however, drops the nasal in word-initial position, thus creating an auditory discrimination problem in the syllable-initial position. The Aborigines subsequently chose to split the homorganic cluster for teaching purposes. The low number of errors shows this to be successful.

(d) velar consonants (3 errors out of 805+)

Some literates initially had trouble in distinguishing aurally between velar stops and velar nasals, i.e. /k/ and /ng/, and /kw/ and /ngw/. The sounds vary freely in the closure of syllables at morpho-phonemic boundaries. The minimal number of errors indicates that the problem is now resolved.

(e) rounded velar consonants (4 errors out of 230+)

The syllable 'kwu' was originally taught in contrast with 'ku' where no such contrast exists. The problem was multiplied because it caused confusion in reading and writing 'k' or 'kw' preceding 'a' where a contrast does exist. The present orthography corrects this anomaly by writing only the emic consonant /kw/ before 'u'. Errors mainly preceded /a/ and were minimal.

(f) vowel 'a' which is phonetically [e] (12 errors out of 425+)

All those tested were initially taught to write 'e' but strongly objected to it. The vowel [e] is an allophone of the phoneme /a/ and is currently written as 'a'.

There are about five minimal pairs where under-differentiation of the consonant causes each pair to be written identically, e.g. /pwarra/ [pʷařa] 'NW wind' and /parra/ [peřa] 'go away' are written as 'barra'. Although context indicates the difference, there were two mistakes. To reduce the ambiguity in another word in the Reading List where no context is given, the form 'mamama' [mememe] 'this' was used to avoid confusion between its short form [mema] and 'mama' [mʷamʷa] 'it doesn't matter'. There were only three errors out of a possible ten by two testees who shortened the words.

The word 'kangkarrina' [kaŋkařina] 'run' was called incorrectly as ke kirena in two out of five cases; and, conversely, the word 'kangkirrana' [keŋkiřena] 'listen' was called incorrectly as [kaŋkařina] in two different cases. The error, however, was not in the reading of the first syllable but in the inattention given to the second and third syllables, 'karri' and 'kirra', which were reversed in both cases. The phonological rule is that [ang] precedes /ka/ and [eng] precedes /ki/. The orthographical device itself worked well in that all testees applied the rules correctly in the words called.

(g) vowels 'a' and 'i' (8 errors out of 2385+)

Almost all the errors involved the calling of 'a' as 'i' and most of them occurred in conjunction with a change in a grammatical affix. There is, however, the possibility that there is a residual problem in which the name of the grapheme and its pronunciation are confused. Anindilyakwa makes no contrast between the sounds [aⁱ] and [eⁱ] and Aborigines are only sure of the letter names when they are said within the alphabet, i.e. in context. These errors were minimal and probably just random.

(h) the VCV sequence 'iyi' (3 out of 23)

The sequence 'iyi' can be shortened phonetically to a lengthened vowel. There is a strong structural pressure for contiguous vowels to be different. Where two identical vowels are likely to occur at a morpheme boundary, the Dissimilation Rule applies to change one of the two high vowels to a low vowel.

Errors were made because the vowel in the second syllable was called as 'a' or 'ya'. Three testees gained 100% accuracy. The other two have the lowest overall scores for accuracy in reading.

(i) the lengthened glide [e^{i}:] written as 'ayi' (10 errors out of 55)

The testees were originally taught to write 'e' for this glide but reacted against it on the grounds that it did not "feel right". Given the choice of 'a', 'ay' or 'ayi', they selected 'ayi' for the long glide and 'a' for the short one.

The errors fall into two groups: final or non-final in a word.

Final: Only one word was included in the test and only one testee got it right. The others substituted a very common word in its place, indicating that they probably read it by sight.

Non-final: The remaining six errors in 50 occurrences (12%) seem to have occurred because a change of vowel usually indicates two syllables.

In comparison with other percentages of accuracy, this high rate of error shows considerably less ability to handle these graphemes. If the percentage of accuracy were as low for the lengthened vowel in (h), errors could have been attributed to problems in writing length but there is no evidence of this.

It should also be noted that no problems occurred where the short vowel glide with the same phonetic quality was written as 'a'.

(j) full stop as a spelling convention (4 errors out of 25)

The full stop is used to separate two full phonemes from a digraph representing only one phoneme, e.g. 'rd' for /ʈ/ versus 'r.d' for /ɾ+ɖ/. The Aborigines do not like this convention because the full stop is seen to be related to the end of a sentence rather than the middle of a word. The closure of the syllable was usually omitted and a more common word substituted.

5.2 WRITING

The testees showed themselves to be competent in writing skills and thus suitable participants for testing. The percentages of accuracy (Table 5) range between an average of 88.0% and 81.4%.

Writing provides a far better indication of the viability of the orthography than reading, especially when testees are bilingual and biliterate.

5.2.1 CLASSIFICATION OF WRITING ERRORS

Twelve categories (shown below) were set up to investigate the nature of each person's writing errors. Attempts were made to keep these the same as for reading but a more detailed classification was needed in the controversial areas, e.g. rounded consonants, high vowel. Listing in syllables remained the same and ambivalent errors were placed in the category most crucial to solving orthography problems. The categories covered errors in writing, as follows:

(i) incorrect writing of graphemes other than (iv) to (xi)
(ii) metathesis/reversal of graphemes or syllables
(iii) in two syllables with the same initial consonant
(iv) in writing 'w' as rounding on the consonant
(v) in the short vowel [e] or [e^i] preceding a velar
(vi) in the short vowel [e] or [e^i] other than preceding a velar
(vii) in the two-syllable sequences for long vowels, 'ayi' and 'iyi'
(viii) in the high vowel following 'Cw'
(ix) in the high vowel following 'w'
(x) in the high vowel following 'm' or 'b' where there is under-differentiation of the consonant and over-differentiation of the vowel
(xi) in the high vowel preceding a rounded consonant. Further divided into "within the morpheme" and "at MP boundaries" because phonological rules for underlying forms occur.
(xii) in substituting one word for another

5.2.2 DISCUSSION OF WRITING ERRORS

Categories (i), and (iv) to (xi) which refer directly to the incorrect writing of graphemes are discussed below as pertinent to the testing of a phonetic alphabet.

Problems under category (i) are as follows:

(a) grapheme substitutions: palatal, dental or alveolar consonants (25 errors out of 230+)

The errors occurred because of confusion between 'ly' / 'l', or 'ny' / 'n' and 'y'. Three testees each made between two and four errors; the remaining 17 errors were made by two testees. As the degree of error varied greatly with the individual, it is most likely to be caused by structural complexity (see Section 5.1.2 (a)).

The problem is not orthographical and scores could be improved through adequate teaching methods and revision for individuals needing it. Literature for literacy classes needs to be spelt to suit the Umbakumba communilect.

(b) digraphs: retroflexed and flapped consonants (42 errors out of 440+)

In 37 of the errors, the alveolar was written instead of its retroflexed counterpart, i.e. the 'r' was omitted. Errors fell into two groups: three-quarters were in syllable-initial position and the remainder in syllable final position.

Retroflexed consonants except /ɽ/ are statistically infrequent, i.e. less than 2% of consonants in over 100 pages of text. Only in two or three cases in the language do they occur in word-initial position. In auditory discrimination exercises, Aborigines dropped the retroflexion for syllable-initial consonants when said in isolation and wrote the resultant alveolar. (Aleveolars are not traditionally phonemes but allophones of the dental series.) Part of the digraph or trigraph was written in the closure of the syllables but it was not always the retroflexion which was omitted.

The orthographical devices appear to be satisfactory with structure compounding the normal difficulty in handling digraphs.

Various teaching methods were used to try to overcome problems in writing retroflexed consonants. One method required the word to be slowed down but not completely broken into syllables to help to retain the retroflexion. This did not work because the Aborigines had no way of knowing which words to slow down and which to break completely into syllabic units. The most effective method was one of revision where literates were asked to edit their own work, reading each word carefully and correcting any errors. Such editing was probably not done during these tests because of the pressure.

Only one testee wrote the flap 'rr' incorrectly as the retroflexed 'r'. This distinction has been a problem with a few individuals during auditory discrimination exercises in the early classes.

(c) syllable closure: consonants (66 errors out of 305+)

One testee made no errors in closing the syllables with a consonant but did have errors in writing certain graphemes correctly. One testee (who was not available for an advanced literacy class or for revision) accounted for 29 of the errors, i.e. almost half. The greatest problem was observed in words with syllables closed by two or more graphemes (19

errors out of 35) where either one or none was written. Such syllables are rare in the language but do occur in some very common morphemes.

Errors occur because of structural pressures in the language which cause problems in auditory discrimination. Only a vowel occurs word-finally and so syllable final consonants are dropped when word-medial syllables are said in isolation. Practice in auditory discrimination and editing one's own work has reduced such error to a minimum for most literates.

(d) velar consonants (4 errors out of 455+)

There were no errors in writing these consonants correctly but there were four instances where 'k' or 'm' were added after 'ng'. The combinations of consonants, 'ngk' and 'ngm', are common in the language. Although the /ŋ/ can elide, full forms are always written.

The problems arising in Category (iv) are as follows:

(e) rounded velar consonants

The orthography uses 'w' to symbolise the feature of rounding on velar consonants. The syllables 'kwu' and 'ngwu' contrast with 'ki' and 'ngi', respectively. The data was hard to evaluate because at times the wrong syllable was written. This was considered to be an error in auditory discrimination. The errors listed here are the ones where the combination of consonant and vowel were incorrect as far as the orthography was concerned. What is examined here is the correct use of the orthography in writing the syllables 'kwu/ngwu' or 'ki/ngi' (but not 'ku/ngu') preceding a rounded consonant.

Table 7 shows the percentages of accuracy in writing the above symbols, 'kwu', 'ngwu', 'ki' and 'ngi', according to the Umbakumba orthography. It is divided into two sections: within the morpheme and at the morpheme boundary. The average percentages show that there is about equal ability in handling the graphemes within the morpheme (68.3%: 43/63) and at the morpheme boundary (64.6%: 42/65).

TABLE 7

Percentages of accuracy in writing the rounded/ unrounded velar consonants preceding u

Testees	Within the morpheme		At the morpheme boundaries	
	Lists	Stories	Lists	Stories
Roberta	100.0% (9/9)	100.0% (7/7)	88.9% (8/9)	100.0% (5/5)
Sophia	66.6% (6/9)	33.3% (1/3)	71.4% (5/7)	0.0% (0/2)
Maxine	100.0% (7/7)	100.0% (4/4)	83.3% (5/6)	60.0% (3/5)
Carla	70.0% (7/10)	33.3% (1/3)	57.1% (4/7)	88.9% (8/9)
Heather	0.0% (0/10)	100.0% (1/1)	16.7% (1/6)	33.3% (3/9)

Two testees who were strongly in favour of writing Cwu throughout but who were originally taught both spellings as contrastive, gained 96.7% (29/30) and 86.4% (19/22). The testee who was in favour of Cw but taught only Cu throughout, gained 65.5% (19/29). The two testees who preferred Cu but were taught both as contrastive, gained 57.1% (12/21) and 19.2% (5/26). The testees' percentages showed a wide range of variation but there is evidence that most chose one set of graphemes rather than using both in a systematic way.

The highest scores of accuracy were attained by those who chose to write 'w' to indicate rounding.

The Angurugu orthography originally had Cwu and Cu in contrast but this was changed in 1980 to mutually exclusive distribution with /kw/ and /ŋw/ as the phonemes. The orthography, however, uses the allophones: Cw preceding unrounded consonants and Cu preceding rounded consonants. At the morpheme junctures, the surface form is written.

Table 8 shows the percentages of accuracy in relation to each orthography. The percentages for Cwu preceding unrounded consonants is the same for both orthographies, with the controversial area being the one preceding rounded consonants.

TABLE 8

Comparison of orthographies relating to rounding of the velar consonant

Testees	Preceding C: Ang. and Umb. Cwu	Preceding Cw: Ang. Cu	Umb. Cwu/Ci
Roberta	100.0%	6.7%	93.3%
	15/15	1/15	14/15
Sophia	77.0%	62.5%	37.5%
	10/13	5/8	3/8
Maxine	100.0%	30.0%	70.0%
	12/12	3/10	7/10
Carla	53.8%	18.7%	81.3%
	7/13	3/16	13/16
Heather	11.1%	76.5%	23.5%
	1/9	13/17	4/17

Where both Umbakumba and Angurugu orthographies are the same, the percentage of accuracy is 72.6% (45/62). The highest individual inaccuracies were for the person who wanted Cu throughout the language or was taught Cu. Where the orthographies differ, Umbakumba attained 62.1% (41/66) and Angurugu 37.9% (25/66). This indicates almost twice as much success in using the Umbakumba choices where there is a correlation between phoneme and grapheme.

Other errors in the writing of Cw occurred preceding the low vowels. The syllables, /kwa/ and /ŋwa/, clearly contrast with /ka/ and /ŋa/ respectively. Table 9 lists the percentages of accuracy in writing Cwa.

The writing of the rounding of the velar as 'w' before a high vowel cannot be divorced from the same situation preceding a low vowel. The percentages of accuracy in Table 9 indicate that those testees who preferred to write 'w' gained 100% in accuracy in writing Cw correctly preceding the low vowel. Those who chose to omit the 'w' failed to write it accurately preceding the low vowel where the contrast is clear.

These results indicate that there is greater overall accuracy if 'w' is written preceding 'u'.

TABLE 9

Percentages of accuracy in writing 'w' as the rounding of a velar consonant preceding 'a'

Testees	Lists	Stories
Roberta	100.0% (10/10)	100.0% (12/12)
Sophia	70.0% (7/10)	93.0% (11/12)
Maxine	100.0% (10/10)	100.0% (14/14)
Carla	100.0% (10/10)	100.0% (11/11)
Heather	100.0% (10/10)	95.0% (19/20)

There is one other problem related to the spelling of the rounded velars. Because the basic form of a syllable and the surface form can differ, a decision was made regarding the spelling at the morpheme boundaries. When a root ends with /kɨ/ or /ŋɨ/ and the suffix begins with a rounded consonant, the root-final syllable can optionally change to [k^wu] or [$ŋ^w$u] in the surface structure. The Aborigines chose to write the basic forms /kɨ/ and /ŋɨ/ in this environment in order to keep the form of the root consistent. If phonic skills are applied the syllable is isolated and the basic form is pronounced and written.

It is extremely difficult to make an assessment of the syllable at the morpheme boundary because two orthographical issues are involved. Ignoring the vowel, the following percentages of accuracy were estimated according to whether C or Cw was written:

Cw preceding	C	50%	(3/6)
Cw "	Cw	41.5%	(10/24)
C "	Cw	87.2%	(34/39)

The greatest percentage of accuracy correlates with the recognition of the hardest one to identify, i.e. the basic form /kɨ, ŋɨ/ which is [kwu,

ngwu] in the surface structure. This confirms that there is an innate feeling for the basic form. Less accuracy was attained when the basic and the surface forms were the same, i.e. the basic (emic) form Cwɨ written as Cwu. The errors were not simply the omission of 'w' but also the choice of the wrong emic syllable. It could be that, in concentrating on getting the basic forms which were difficult, they have leant too much in that direction.

The problems in Categories (v) and (vi) are as follows:

(f) low vowel 'a' which is phonetically [e] (9 errors out of 347)

Everyone was taught to write 'e' for this allophone until late 1980 when it was changed to 'a' at Umbakumba because of repeated requests by the literates. Table 10 shows the percentages of accuracy, together with a comparison for lists and stories.

TABLE 10

Percentages of accuracy for the short low vowel 'a' [e]

Testee	Preceding velar consonants		Preceding non-velar consonants	
	Lists	Stories	Lists	Stories
Roberta	100.0% (7/7)	-	100.0% (48/48)	100.0% (15/15)
Sophia	100.0% (7/7)	-	100.0% (48/48)	100.0% (12/12)
Maxine	71.0% (5/7)	-	98.0% (47/48)	100.0% (20/20)
Carla	100.0% (7/7)	-	96.0% (46/48)	73.0% (11/15)
Heather	100.0% (5/5)	100.0% (2/2)	100.0% (40/40)	100.0% (18/18)

Errors were made by only two testees, both of whom read 'e' regularly in church materials sent from Angurugu. The grapheme 'e' was in only seven errors preceding non-velar consonants. The minimal number of errors indicate that no orthographical problem exists.

The problems in Category (vii) are as follows:

(g) lengthened vowel glide [e^{i}:] written as 'ayi' (50 errors out of 81)

The testees were taught to write 'e' in this position in accordance with the Angurugu orthography until late 1980. No testees used 'e' in the spelling of the glide. The percentages of accuracy in writing 'ayi' and 'iyi' are shown on Table 11.

TABLE 11

Percentages of accuracy in writing the VCV sequences

Testees	Word Lists		Stories	
	Control Words	Other Words	Control Words	Other Words
Roberta	60.0% (3/5)	0.0% (0/6)	100.0% (5/5)	-
Sophia	40.0% (2/5)	17.0% (1/6)	-	0.0% (0/1)
Maxine	20.0% (1/5)	0.0% (0/6)	100.0% (2/2)	-
Carla	80.0% (4/5)	17.0% (1/6)	100.0% (5/5)	100.0% (1/1)
Heather	40.0% (2/5)	20.0% (1/5)	100.0% (3/3)	-

Five control words were included in the word lists as a basis upon which to gauge the spelling of the more controversial words. These words have a sequence /ayɨ/ and /ɨyɨ/ which optionally reduces to a lengthened vowel. There were 13 errors in 25 occurrences (52%) but one testee had 80% accuracy. In the stories, where the words with 'ayi' or 'iyi' sequences do not have a variant with the short form of the glide, there was 100% accuracy.

There is consistency in the two orthographies in the spelling of the control words. At Angurugu, only the longer, more precise form is included in the literature but at Umbakumba both forms are written and

considered to be legitimate variants of the same word. The younger adults at Umbakumba often use only the shorter form and do not seem to be aware of the longer form used by the older adults. What they do not say, they cannot write. As there were no errors in the spelling of words without a short form, the errors may have occurred simply because the shorter form was chosen.

In the controversial words there were 27 errors in 31 occurrences (87.1%). The results indicate that the testees could not handle their own choice of orthography but continued to find the Angurugu option unacceptable. All errors reduced the glide to one syllable but varied between 'a', 'ai' and 'i'. The one person who used 'ai' also wrote it in another instance where only a single syllable with 'a' can occur. The error 'i' is most likely to be the substitution of another grammatical affix.

If 'a' were taken as the correct symbol instead of 'ayi', the percentage of accuracy in controversial words would be 64%. Following this testing, re-analysis of the controversial glide showed that it is an allophone of the phoneme /a/ with length a supra-segmental feature. Thus the Umbakumba Aborigines wrote according to their intuitions and this was more reliable than their choice during discussions.

The problems in Categories (viii) to (xi) are set out below. All categories refer to the spelling of the high vowel as 'i' or 'u'.

(h) the high vowel /i̱/ written as 'i' or 'u'

The Aborigines at Umbakumba were taught 'i' and 'u' as contrastive unit until 1980. The decision was made in 1981 to retain 'u' (even though it is not contrastive) but to use well defined spelling rules. The allophone [u] was to be written only within a syllable, contiguous to a rounded consonant, viz. /kwi̱/ as 'kwu'; /ngwi̱/ as 'ngwu'; /mwi̱/ as 'mu'; /pwi̱/ as 'bu'; and /wi̱/ as 'wu'. One exception was made to write /Cwi̱/ preceding /y/ with an 'i'. The grapheme 'i' was to be written in all other instances, viz. where only an unrounded vowel occurred. The contrast between /Ci̱/ and /Cwi̱/ is thus maintained within the syllabic unit though in some cases the contrast is transferred from the consonant to the vowel, e.g. 'mu' /mwi̱/ versus 'mi' /mi̱/, and 'bu' /pwi̱/ versus 'bi' /pi̱/.

Spelling convention preceding /y/:

These syllables should have been written as 'kwu', 'ngwu', 'wi', 'mi' and 'bi'. No data included 'ngwu' and none of these syllables occurred in the stories. In all these syllables, the phonetic variant is [i] of the phoneme /i̱/. Table 12 sets out the percentages of accuracy.

TABLE 12

Percentages of accuracy in writing 'i' or 'u' preceding 'y'

Testees	Lists		Lists	Stories
	kwu	wi	m/bi	m/bi
Roberta	50.0% (1/2)	100.0% (2/2)	100.0% (13/13)	100.0% (6/6)
Sophia	50.0% (1/2)	100.0% (1/1)	100.0% (13/13)	100.0% (7/7)
Maxine	0.0% (0/2)	100.0% (2/2)	100.0% (13/13)	100.0% (5/5)
Carla	100.0% (2/2)	50.0% (1/2)	92.0% (12/13)	100.0% (6/6)
Heather	50.0% (1/2)	50.0% (1/2)	100.0% (12/12)	100.0% (8/8)

No errors were made where 'mi' and 'bi' occurred. Errors occurred when 'kwu' was written as 'kwi', and 'wi' was written as 'wu'.

The Angurugu orthography uses both 'i' and 'u' (see Section 0.3). There is no way to check it in detail at this time but, from words known, the score would be higher where 'i' was used because it would then be correct.

Spelling convention: 'u' following 'm', 'b', and 'w'

The vowel 'u' was chosen as the grapheme to be written after rounded consonants, viz. 'mu' for /mwi/; 'bu' for /bwi/ and 'wu' for /wi/. In literature, only 'u' has been used with /w/ but both 'u' and 'i' have been used with /mw/ and /pw/.

When a high vowel occurs between two rounded consonants, only the allophone [u] occurs. When a high vowel occurs following a rounded consonant and preceding an unrounded consonant, the allophones vary from a high front unrounded vowel to a back rounded vowel. The Aborigines have had the most trouble deciding on how to write the vowel in this position.

Table 13 lists the percentages of accuracy in writing 'u' in the two different positions. Between two rounded consonants, no separation was necessary because of the difference in consonants.

TABLE 13

Percentages of accuracy in writing 'u' following a rounded consonant

Testees	Between Cw and Cw		Between Cw and C			
	Lists m/b/wu	Stories m/b/wu	Lists m/bu	wu	Stories m/bu	wu
Roberta	40.0% (2/5)	100.0% (2/2)	19.0% (3/16)	80.0% (4/5)	14.0% (1/7)	86.0% (6/7)
Sophia	80.0% (4/5)	100.0% (3/3)	69.0% (11/16)	80.0% (4/5)	50.0% (3/6)	100.0% (6/6)
Maxine (16/18)	100.0% (5/5)	100.0% (5/5)	25.0% (4/16)	60.0% (3/5)	0.0% (0/11)	89.0%
Carla (10/12)	100.0% (5/5)	100.0% (3/3)	88.0% (14/16)	80.0% (4/5)	82.0% (9/11)	83.0%
Heather (11/14)	60.0% (3/5)	100.0% (2/2)	43.0% (6/14)	0.0% (0/2)	27.0% (3/11)	79.0%
Average	76.0%	100.0%	48.8%	60.0%	34.8%	87.4%

Only in the stories did all testees gain 100% of vowel accuracy between two rounded consonants, where the first one was 'w'. The words in the story, however, are all well-known vocabulary where 'u' has been written consistently. From observations in literacy classes, these words have been memorised and are usually written very quickly without the phonics skills being applied. In the word lists, where the testees could not control their own data, the percentage of accuracy dropped to 76%.

Where there is a choice of allophones preceding an unrounded consonant, the percentages show that the spelling conventions have not been applied satisfactorily, except for 'wu' in the stories. Wherever an error

occurred the emic /ɨ/ was written. The choice of 'u' meant that the rounding of the consonant was transferred graphemically to the vowel, thus changing 'i' to 'u'. The results show that this is not working. There is an inability to write the allophone consistently or there is a conflict between the emic and the allophonic. After 'm' /mw/ and 'b' /bw/, the emic 'i' /ɨ/ was preferred.

As the Angurugu orthography would use the same symbol 'u' between two rounded consonants and mostly use 'u' between the rounded and unrounded consonants, the percentages of accuracy would apply in that case too. The results show that, except for 'wu' in the stories, the testees did not succeed in using the Angurugu orthography correctly.

It should be noted that two testees wrote 'bw' for the rounded phoneme /ɒw/. This has never been written in any of the literature and only been briefly discussed in classes. One testee wrote this way before any discussion had taken place.

Spelling convention: 'i' written following an unrounded consonant and preceding a rounded one

The grapheme 'i' was chosen following an unrounded consonant and preceding a rounded consonant. All the allophones from a high front vowel to a back rounded vowel occur, basically [i~ɨ~ɯ~u]. The allophones of the vowel begin as unrounded and become progressively rounded in anticipation of the rounded consonant, but there are variants which are wholly rounded. The emic value of the vowel is /ɨ/.

Table 14 shows the percentages of accuracy and is divided into two sections: within the morpheme and at the morpheme boundary. (The number of occurrences differ in the word lists owing to the inclusion or exclusion of transitional vowels.)

TABLE 14

Percentages of accuracy in writing 'i' between an unrounded and rounded consonant

Testees	Within the morpheme		At the morpheme boundary	
	Lists	Stories	Lists	Stories
Roberta	75.0% (12/16)	40.0% (4/10)	92.0% (23/25)	75.0% (24/32)
Sophia	71.0% (10/14)	67.0% (6/9)	82.0% (22/27)	13.0% (2/15)
Maxine	53.0% (8/15)	25.0% (3/12)	65.0% (17/26)	27.0% (8/29)
Carla	45.0% (10/22)	53.0% (9/17)	75.0% (21/28)	39.0% (15/38)
Heather	58.0% (11/19)	33.0% (6/18)	64.0% (18/28)	42.0% (16/38)
Average	60.0%	43.6%	75.6%	39.2%

There is no significant difference as to whether the grapheme occurred at the morpheme boundary or within a morpheme. This would indicate that the orthography does not require special morphophonemic spelling to cope with differences between the surface and deep structures.

These results show that, in the word lists where the phonic skills have had to be used, there is a significantly greater percentage of accuracy (67.8%) than in the stories where memorised forms of common words were used (41.4%). There are also common suffixes which appear to have been written automatically, e.g. the verb ending Vma and the noun affixation Vwa.

The Angurugu orthography uses 'u' preceding a rounded consonant. The percentages of accuracy would simply reverse, e.g. 60% accuracy at Umbakumba means 40% accuracy for Angurugu. The average scores would be 32.2% for word lists and 58.6% for written stories for the Angurugu orthography.

In the 1974-77 orthography, high vowels which were phonetically unrounded were written contrastively as 'i' and 'u' because the allophone contiguous to a velar was recorded as [u] (similar to certain English pronunciations of the high back vowel), e.g. 'ajirungka' /ajɨrɨŋka/ [aʈʐɨriŋka] 'ground'; and 'nirrungka' /nɨřɨŋka/ [nɨřɨŋka] 'he saw it'. The Aborigines pointed out that these high vowels are the same and spelling was altered to make them identical. A similar type of problem, however, has now arisen because of the spelling conventions and is a significant factor in spelling errors. Both vowels are used in words where the phonetic realisation is identical or overlaps, e.g. 'wurriwarda' /wɨřɨwaṭa/ [wuřuwaṭa] 'dog'; 'mamurikwa' /mwamwɨrikwa/ [mʷamʷurɨ̈ukwa] 'road'. Another factor causing error is the writing of 'u' in positions where a clear phonetic [i] occurs, e.g. 'yakwabujina' /yakwapwɨjina/ [yakʷɔpʷiʈina] 'forget it!'.

(i) spelling convention for the full stop (5 errors out of 5)

Only one word needed to be written with a full stop in the tests but not one testee got it right. One testee wrote the grapheme that closed the syllable but failed to write the full stop. The other four omitted to write the closure of the syllable and the full stop, thus making it impossible to predict what would have been written along with closure. This spelling convention is not satisfactory.

(j) hyphen

There were almost no hyphens written in the Writing Lists but some were used correctly in the stories. Because of other orthographical problems very little attention has been given to writing this symbol. It is a teaching, rather than an orthographical, inadequacy.

6. CONCLUSION

There are two questions which need to be answered: (a) did the results show that the tests themselves were adequate? and (b) what conclusions can be made regarding the viability of the orthography?

6.1 EVALUATION OF THE TESTS

In setting up the tests, the literature and opinions from other local linguists and educationalists were taken into consideration. The testing does appear to be adequate—the full range of graphemes were covered in the lists designed for the tests and the results show a range of errors, some expected, some not. Generally speaking, the tests gave evidence of the same type of problems observed in the literacy classes and in creative writing. It was also expected that there would be different levels of accuracy or competence and this was evident.

The following suggestions are made on ways to improve future testing:

Length

The tests were long so that controversial issues would be covered comprehensively but they could have been shortened and been just as effective. The time taken to mark the tests and document the information seemed to be out of proportion to the profitability in assessing the results. It would have been better to put more time into getting shorter tests with only the pertinent data than to spend so much time in handling and marking a large amount. Any problem became apparent in quite a small body of data.

The stories for reading could be reduced to four half-page stories, especially as this is not the crucial way to test an orthography—writing can be seen in the test results to show up more of the problems. The length of stories written by testees was satisfactory. It should be noted that the testees wrote better, slightly longer, stories when given the set of sequence cards. It was obvious that they found it hard to tell a story from just one picture. Supplying a title for a story would probably be just as satisfactory.

Readability

Stories must be researched for readability. Story 2 had a hard and unusual word in the firstline and, if this was not decoded properly, there was no way to deduce the setting and meaning of the story. This upset the testees and lowered their confidence throughout the story.

In the word lists, it was unfortunate that some words were not known to all testees. The fact that there has been a lot of testing done in this language meant that uncommon forms of words were chosen but that was not the whole problem. Some did not know vocabulary which was thought to be common, e.g. botanical terms. There should be some way to check that all vocabulary is known but this cannot be done with the testee. It may be that another member of the same family could be evaluated beforehand. Age is not the main factor influencing the usage of vocabulary—it is the attitude to their own language in relation to the national language, or the length of time absent from the community in teenage years for higher education.

Problems in readability cause skewing of the scores which is time-consuming when doing statistics and is not fair to the particular testee because it causes such a drop in confidence.

Reading versus writing

For bilinguals who have basic literacy skills in another language, reading alone is not an adequate test. The errors in writing were far greater and far more indicative of the orthographical problems, e.g. the high vowel problem was not evident at all in the reading.

Controlled data

The data was controlled in all parts of the tests except the writing of stories. In these stories some difficult or controversial symbols were just not used. If the testing consisted only of creative writing, the tests would have been inadequate. Secondly, because there is no way to judge whether phonics or memorisation of spelling has been used in creative writing, such testing is very hard to evaluate, even to identifying systematic versus random error.

The most adequate data was in the word lists because the person setting the tests made sure that all controversial graphemes or sequences of graphemes were included. With uncommon words used, there is a high probability that phonics skills were used. Tests could be set up using only words but the stories add much more interest for the testees.

Recorded material

Tape recordings of reading were all, generally speaking, clear and easy to document. Recording of the word lists for writing was not a good idea. A "live" native speaker is necessary for two reasons: to make sure that the testee hears each word clearly (especially chosen prefixed forms) and to ensure that all words are written. Some were missed because of the use of a cassette recorder. While using a "live" speaker may cause problems in organization, any other methods cause greater problems in marking and evaluating the tests. It has been suggested that pictures could have been used but this was not possible in Anindilyakwa because specific prefixes and suffixes had to be tested and because all word classes were considered to be relevant.

Locale and supervision

There appears to be little difference in the results no matter who gave out the instruction sheets. (The lowest scores were for the testee who had the linguist present!)

There was tension for all testees because they knew that orthography

decisions rested on their accuracy. Some were disturbed by children or relatives. Some did not like recording because other non-Aboriginals might listen to it and note their mistakes. The situation with previous testing kept tenseness to a minimum because they were told that the tests were being done in order to see what revision was needed. It is important that testees be as relaxed as possible.

Number of testees

Although the number of testees was small, the results gave a good spread of the type of errors occurring. More testees may have changed the actual percentage of errors but would probably not have added any more types of errors since all experienced similar problems to a greater or lesser degree. The sampling was adequate and indicated clearly where the problems were in the orthography.

The original decision was made by nine people with two in strong disagreement on one issue. As there was this division in opinion, it would have been seen to have been fairer to keep the same proportion, i.e. one to four rather than two to three.

6.2 ORTHOGRAPHY EVALUATION

The high percentages of accuracy in reading and writing indicate that the testees were competent literates and that their work was a sound basis upon which to establish the orthography. While not all testees had attained the same level of fluency and accuracy in reading and writing, the results show that there was a general ability to use the orthographical system. The percentage of accuracy for writing was lower than for reading, in some cases to a considerable degree.

Information was not available for a comparison to be made between these percentages and another orthography which is known to be viable. The results, therefore, were assessed from within the present testing.

6.2.1 GRAPHEMES WHICH ARE NOT CONTROVERSIAL

The graphemes which have been handled with almost no error are as follows:

stops:	b, d, j, k
nasals:	m, n, ng
other cons.:	l, r, y, w
vowels:	a, i

Table 15 gives a comparison of the percentage of error in reading and writing for graphemes which are not controversial. Both linguists consider the orthography to be satisfactory for these graphemes. It can be seen that the margin of error falls between 1% and 11% except for syllable closure and full stop. Note that these percentages are a little high because all errors have been precisely counted, but with high numbers of occurrences (marked +) some may have been missed.

TABLE 15

Comparison of percentages of errors for non-controversial graphemes

Graphemes	Reading	Writing
palatal consonants	3.3% (9/275+)	10.9% (25/230+)
retroflexed and flap consonants	1.2% (8/690+)	9.5% (42/440+)
syllable closure	3.1% (13/420+)	21.6% (66/305+)
velar consonants	0.4% (3/805+)	0.9% (4/455+)
/a/ as 'i'	0.1% (8/2385+)	0.0%
full stop	16.0% (4/25)	100.0% (5/5)

The reason for the errors in syllable closure is that the phonics teaching method which isolates syllables (or sounds) is in conflict with a word pattern which always ends in a vowel and thus causes syllable-final consonants to be dropped. The most significant factor was that one testee had no errors, and three had only a minimum number of errors. These results indicate that the orthography is satisfactory but that special attention and time must be given in this difficult area.

The convention placing a full stop between graphemes enables the contrast between [ṛṭ] and [ṭ], and [ṇṭ] and [ṇṭ] to be represented in

the orthography as 'r.d' and 'rd' respectively. The original Umbakumba orthography devised by Mr. Fred Gray used 't' instead of 'd' and this problem did not arise. In 1975, I asked the Umbakumba people to change to using 'b' for 'p' and 'd' for 't' in order to bring the two communities into harmony. That compromise has resulted in an orthographical device which the Aborigines cannot handle even though it has been practised for years. They use it accurately in the class when it is being taught but consider it silly to have a full stop in the middle of a word when it should be at the end of a sentence.

The 'r.d' and 'rn.d' sequences have a very low functional load and there are no minimal pairs of words which would cause difficulty. As after six years of practice they have not been able (or, perhaps, willing) to use it, the results show that this orthographical device is not satisfactory.

6.2.2 GRAPHEMES WHICH ARE CONTROVERSIAL

Table 16 lists the percentages of error for controversial graphemes. Only in the case of 'ayi' is there any indication in the column for reading that there are orthographical problems, or even any real difficulty. These results show that, for bilinguals literate to some degree in another language, reading alone is not an adequate test of an orthography unless one is prepared to say that 'ayi' is the only problem.

The wide range of percentages of error in writing indicates that some graphemes are not adequately handled. Each must be evaluated in the light of difficulties in the structure of the language, and overdifferentiation between phoneme and grapheme.

TABLE 16

Comparison of the percentage of errors for controversial graphemes

Graphemes	Reading	Writing
rounded velar consonant preceding 'u'	1.7% (4/230+)	33.6% (43/128)
/a/ as 'a' [e]	2.8% (12/425+)	2.6% (9/347)
VCV sequences	1.3% (3/23)	52.0% (13/25)
[e^{i}:] as 'ayi'	18.0% (10/55)	87.1% (27/31)
'i' preceding /y/	0.0%	7.0%
'u' following Cw	0.0%	32.2% (13/40)
'i' preceding Cw	0.0%	45.4%

(a) rounded velar consonants

The orthography was correctly used in two-thirds of material tested. These results, statistically, favour the use of 'kw' and 'ngw' preceding 'u'. The highest scores for accuracy were gained by those using them consistently preceding both 'u' and 'a'.

While it would have been more conclusive to have greater percentages of accuracy, the scores do favour the writing of 'w' for rounded velars. The choice can be shown to provide (a) a higher rate of consistency in spelling than previously attained; (b) a one-to-one correspondence of phoneme and grapheme, making it unnecessary to write allophones; and (c) the same spelling of emic forms within the morpheme or across morpheme boundaries. The choice of Cwu rather than Cu in all positions will mean less change to Angurugu spelling.

Because of the complexity between deep and surface forms, auditory discrimination exercises in isolating syllable at MP boundaries will still be needed.

(b) /a/ [e] written as 'a'

The results show almost total accuracy in using 'a', despite the teaching of 'e' for four years. The emic /a/ rather than the etic [e] is the best choice for the orthography.

(c) VCV sequence 'iyi'

The long VCV form in the control words is used both at Angurugu and Umbakumba. At Umbakumba, the short form is also allowed in spelling. The high percentage of usage of the short form can be attributed to the fact that four out of the five testees were in the young adult age group which uses shorter forms and less complex structures.

The orthographical system is satisfactory but there must be an optional spelling allowed for the short form as well as the long one. Attention in literacy classes should be given to this as a special feature in contrast with long and short forms that indicate a change in grammatical meaning.

(d) [e^{i}:] as 'ayi'

The results clearly indicate that this system of graphemes is not satisfactory. The lengthened glides were usually not heard or written as two syllables in word-initial or word-medial positions. Some Aborigines acknowledge that there is a long and short form of this glide but, if so, they have not chosen to write it. The symbol 'e' used at Angurugu was not used at all by the testees.

The percentage of accuracy using 'a' was 64%, indicating that this was their preference. Where a similar glide was judged to be short and written as 'a' there was 100% accuracy. With all of these glides now recognised as short vowels, the orthography can utilise 'a' for all of them, irrespective of whether they are phonetically lengthened because of the stress/timing/rhythm. The phoneme /a/ has two allophones [e] and [e^{i}] conditioned by the following peripheral consonant plus a high front tense vowel. The conditioning is not always apparent phonetically in the surface structure: 'angkalya' [engkalya] = /angki+alya/ 'wet place'; 'wurriwaba' [wurruwepa] = /wirri+wapi+a/ 'parrot'.

Where the long glide occurs in a stressed syllable word finally, most of the errors indicated that two syllables were heard. This glide should continue, therefore, to be written as 'ayi' with an acceptable alternate form 'aya' because this variation occurs in the data, e.g. yakayi [$yaka^{i}$:~$yake^{I}$:] varies with yakaya [$yaka^{i}ya$], both of which mean 'ouch!'.

(e) the high vowel

Even though the percentages of error indicate a slightly more favourable acceptance of the Umbakumba orthography than that at Angurugu, these results show that the use of both 'u' and 'i' in the orthography is not satisfactory. If the Aborigines are to be the authorities on the spelling of their own language, their competence and confidence must be raised.

These results climax six years of trying to find a way to keep 'u' in the orthography when only 'i' is emic. If the vowel 'u' is emic, why cannot the literates write it consistently and accurately when they can write other emic units with very little error? Errors indicate that the emic vowel /i/ was chosen. There have been three basic changes in the spelling introduced slowly over six years, with each change making the orthography more systematic. Where other parts of the orthography have been changed from the etic to the emic, results are now satisfactory; but where the etic here has been retained, the results are not. (Note: the words selected for testing were ones where the use of 'u' would be almost identical at both Angurugu and Umbakumba. The results show that neither orthography is handled satisfactorily.)

The most significant factor is over-differentiation, i.e. the writing of the allophone 'u'. The use of 'i' when syllables were isolated from the following conditioning consonant are proving to be satisfactory. It was thought that, as most Umbakumba Aboriginal adults are literate in English, this expertise would facilitate the writing of 'u'. This is not apparent even though the five testees are among the most competent bilinguals/biliterates. The continuing confusion may be attributed to (a) the overlapping system in English where 'u' represents both [u] and [a], or (b) both languages being kept separate and only the emic units in Anindilyakwa being in focus. The spelling conventions themselves were too finely detailed.

The answer lies not in further re-arrangement or simplification of the spelling conventions for the fourth time, but in writing the emic symbol 'i' and deleting 'u' from the orthography. This 'i' is already frequently used and, in the position preceding a rounded consonant, the results show that there is more success in using 'i' when applying phonic skills.

The fact that 'i' can be read fluently in these positions is further attested by the reading of the testees' hand-written stories onto cassette by Mrs. Katie Herbert.

7. RECOMMENDATIONS

A good practical orthography is not based on statistics alone nor always on a one-to-one correlation between phoneme and grapheme. Deborah Weaver states (1980):

> It can be clearly seen that the design of a practical orthography is no easy task. The linguist must be a skilled diplomat as he strives to meet the demands placed upon him by a wide variety of factors. Most importantly the linguist needs to be willing to settle for an orthography which may be less than ideal, linguistically. An orthography which is satisfactory to the speakers of the language by allowing them to learn to read, and which fits into the goals of the national culture is difficult, but not impossible to achieve.

I would add to this statement one further requirement, viz. that the indigenous people be seen to be competent and confident in writing literature with their own orthographical choices.

The orthography preferred by the Umbakumba Aborigines is not ideal but it is culturally acceptable and generally systematic. There is a consensus despite the fact that they have not been free to be exposed to only one orthography during the time of its development.

Consonants

The recommendations for the consonants are as follows:

1. the symbols chosen remain the same.
2. the alveolar and dental series of consonants continue to be written with only one set of graphemes, viz. 'd', 'n', and 'l'.
3. the contrast between /m^w/ and /m/, and /p^w/ and /p/ not be represented in the orthography and that 'm' and 'b' be used for the two phonemes in each pair.
4. the full stop be deleted within words.
5. 'w' be written on rounded velar consonants preceding both high and low vowels, e.g. 'kwa' for the phonemes /k^wa/ [k^wa~k^we~k^wɔ], and 'kwi' for the phonemes /k^wi/ [k^wi~k^wɨ~k^wu]. (Note that with the deletion of the vowel 'u' there would be further under-differentiation if the 'w' here is also deleted.)

The above choices mean that there will be three areas of under-differentiation in the consonants, all of which have been

occurring during the last six years without any serious problems in reading and writing by the Aborigines. While under-differentiation may cause problems in some languages, Anindilyakwa has two significant structural features that allow it: (a) some phonemes are very rare; and (b) almost no minimal pairs occur because of the long words. No minimal pairs occur in (2) and (4) above in the traditional vocabulary. To date, only five minimal pairs have been found in (3) and the context has enabled the Aboriginal reader to identify the correct word, e.g. /m^{w}arra/ 'wattle (sp.)' written as 'marra' which overlaps with the same spelling for /marra/ [meɾa] 'rope'.

Vowels

Only two vowels are emic in Anindilyakwa. Writing more than two means that there is over-differentiation and Aborigines are being asked to write sounds which they cannot hear as contrastive. Over-differentiation is known to cause more problems than under-differentiation but is usually adopted to suit bilinguals who are also literate in another language. In this case, the bilinguals have not been able to write 'u' consistently and have not chosen to continue to write 'e'. As the language can be read and written by native speakers without includig the two extra vowels, the best solution is to write only the two vowels which they can hear as contrastive.

The recommendations for the vowels are:

1. 'a' be written for [a], [e] and [æ]; and 'i' for [i], [ɨ], [u].
2. the short [e^{i}] glide preceding unrounded velars and labials be written as 'a'. This means that all short glides, [a^{i}], [a^{u}], [e^{i}], and [ɔ^{u}], will be written systematically as 'a'.
3. the long glides, [e^{i}:] and [a^{u}:], and the long vowels, [i:] and [u:], be written as VCV sequences, viz. 'ayi', 'awi', 'iyi' and 'iwi'.
4. where the long vowel or glide has an optional short form, that both be accepted as correct and used in the literature.

The orthography is not ideal and it is too late to effect some changes to reduce the amount of under-differentiation. It is, however, an orthography which can be used competently by the Aborigines. Because the orthography does not represent all emic, contrastive sounds, the non-Aboriginals will need a near native-like fluency to be able to read it. Writing for the non-Aboriginal, who is not a linguist, will be

easier. The old system of writing vowel allophones suited the non-Aboriginals, including the linguists, because phonetic values were written and easily recognised by native speakers of English. I believe it is essential that the orthography be designed to suit the Aborigines who "own" the language so that they may become the authorities on the correct spelling of their own language. The orthography must be workable for all members of the community, not just the ones who are skilled in reading English. The Aborigines at Umbakumba are very concerned about having the orthography as easy as possible for the sake of the children who will be virtually monolingual when learning to read and write.

An example of the orthography as per the above recommendations is in the Appendix. Parts of Stories 1 and 4 for reading have been re-spelt.

APPENDIX

Key to Linguistic Notations and Terms

[ ]	phonetic script
' '	graphemic script
/ /	phonemic script
( )	alternate form
~	varies with
:	length
+	following letters: a syllable break following numbers: the total is for lists but not for stories
#	marking system: not a word vernacular words: morpheme break
allophone	a sound which native speakers do not hear as contrastive with other similar sounds
alveolar	a sound made with the tongue on the ridge behind the top teeth, i.e. d, n, l
analogous	similar but not identical
C	consonant
Cw	any labial or velar consonant which is rounded
closed syllable	one which ends with one or two consonant phonemes
dental	a sound made with the tongue against the top teeth, i.e. d̪, n̪, l̪
[e]	represents [e] as in 'bet' and [æ] as in 'bat'
emic	short form of phonemic
high vowel	[i] as in 'beat'; [ɪ] as in 'bit' (New Zealand dialect) or 'could' (Qld. dialect); [u] as in 'put'
literate	able to read and write
low vowel	[a] as in 'but', [æ] as in 'bat', [e] as in 'bet'
minimal pair	a pair of words where only one sound signals a change in meaning, e.g. 'pin' and 'bin'
morpheme	smallest meaningful part of a word
morphophonemic/MP	phonemic at the junction of two morphemes, e.g. root and suffix, prefix and root
open syllable	one which ends with a vowel
palatal	sound made with the tongue blade against the top teeth, viz. 'j', 'ly', 'ny' and 'y'
peripheral	consonants which are labial (m, mw, p, pw, w) or velar (k, kw, ŋ, ŋw)
phoneme	a sound which a native speaker regards as contrastive with other sounds in the language. It may represent one or more phonetic variations.
phonetic alphabet	phonemic representation: one-to-one correspondence between phoneme and grapheme
V	vowel
velar	consonants /k, kw, ŋ, ŋw/

WORKSHEETS FOR THE READING LISTS

Orthographic	Phonemic	Phonetic	English
Reading List 1			
yakwabujina	yakwapwɨjɨna	yakʷaʔ/ɔ pʷiṭina	forget it!
kadiya	kaṯɨya	kaʔ/etiya	pretend!
akardanama	akaṭanamwa	akaṭenamʷa	they will call out
arrikarrina	ařɨkařɨna	eřikʔ/eřina	turn back!
dirriburaka	ṯɨřɨ(ɨ)pwɨraka	ṯɨřɨ(ɨ)pʷuraka	straighten it!
niwalyiwuna	nɨwalyɨwɨna	nuwalyuwuna	he cooked it
abinakiya	apɨnakɨya	epinakiya	both the same
ngayabakiya	ŋayapwakɨya	ŋaⁱyapʷakiya	on my own
rrakajina	řakajɨna	řakaⁱṭina	sit it along!
mungalika	mwɨŋaḷɨka	mʷɨŋalɨka	pandanus fruit
anani-wiya	ananɨwɨya	enenuwiya	now
bulikwa	pwɨlɨkwa	pʷulukʷa	bullock
laka	ḷaka	ḷa:ka	ready
ayikalara	akaḷara	eⁱ:kaḷara	burnt out area
arribiyaja	eřɨpɨyaja	eřipiyaṭa	pull it out!
rijawudiyina	rɨjawɨṭɨyɨna	riṭaᵘwuṭiyina	get onto it!
jikwa	jɨkwa	ṭukwa	sugar
wurrimiyabiya	wɨřɨmwɨyapwɨya~ wɨřɨmwɨyapɨya	wuřumʷiyapʷiya~ wuřumʷiyepiya	stick insect
kwulinga	kwɨlɨŋa	kʷɨ/uliŋa	rudder
arrikarrana	ařakařana~ařɨkařana	ařakařena~ařikařena~ eřikeřena	draw it!
lyalyingi-ma	lyalyɨŋɨmwa	lyʔ/elyiŋumʷa	with a knife
ngwayi	ŋwayɨ	ŋʷe:/eⁱ/aⁱ	stop staring!
libanga	lɨpaŋa	lipaŋa	bait
aningabada	anɨŋapwaṯa	eniŋapʷaṯa	be good!

abungwurra	apwɨŋwɨřa	apʷuŋʷuřa	drunkenness
wungwudanga	wɨŋwɨṯaŋa	uŋʷuṯaŋa	pinch it!
lyibalyiba	lyɨpalyɨpa	lyipalyipa	boat
amiyarraba	amɨyařapa	emiyeřepa	for a while
kwubardiya	kwɨpʷaṭɨya	kʷupʷaṭiya	camp out!
akaburra	akapwɨřa	akapʷuřa	who?
warnimikirra	waṇɨmɨkɨřa	waṇimikiřa	their names
jadana	jaṯana	ʈaṯena	come out!
adiyarriwa	aṯɨyařɨwa	ᶜ⁄atiyeřuwa	young
rayika	rayɨka~raka	reⁱika~reⁱka	rake
likwakwa	l̪ɨkwakwa	l̪ukʷ⁄ᵏkʷa	en route
barrika	pařɨka	peřika	gate
amudilya	amwɨṯɨlya	amʷuṯilya	cough
yimilyana	yɨmwɨlyana	yimʷilyena	carry me in your arms!
ngabukwuna	ŋapwɨkwɨna	ŋapʷukʷuna	carry it on the head!
naburraka	napwɨřaka	napʷuřaka	my son
warribalija	wařɨpwal̪ɨja	wᵃ⁄ěripʷal̪iʈa	spread it out!
diwadirra	ʈɨwaṯɨřa	ʈuweṯɨřa	cockatoo
kirribukwaya	kɨřɨpwɨkwaya	kiřupʷukʷaⁱya	you (pl) coming
yibulyibulya	yɨpwɨlyɨpwɨlya	yʷ⁄ipʷilyⁱ⁄upʷilya	gecko
adirra	aṯɨřa	ᵉ⁄eⁱtɨřa	hole
ngarra	ŋařa	ŋařa	no!
yikwurna	yɨkwɨṇa	yukʷuṇa	baler shell
wurimana	wɨrɨmwana	wurumʷena	fly!
jirrikaya	jɨřɨkaya	ʈiřikaⁱya	leader
raja	raja	raⁱʈa	rice
kirrangaba	kɨřaŋapwa	kɨřaŋapʷa	you two over there

nikalarikwa	nɨkaḻarɨkwa	nikaḻarukʷa	he burnt it
darrawurikwukwa	ṯaṙawɨrɨkwɨkwa	ṯaṙawurukʷukʷa	dove
bayikina	pakɨna	peⁱ:kina	drink it!
mardawa	mʷaṭawa	mʷaṭaᵘwa	hot cooking stones
ayiwaya	ayɨwaya	eʲⁱyuweʲᵃⁱya	weak
kwuja	kwɨja~kwɨwɨja	kʷuʈa~kʷuwiʈa	(exclamation)
ayikawarriya	akawaṙɨya	eⁱ:kawaṙiya	left
liraka	ḻɨraka	ḻɨraka	light the fire!
lyikajawuna	lyɨkajawɨna	lyikaʈaᵘwʲuna	fall down!
ngwadina	ŋʷaṭɨna	ŋʷaṭina	cry!

Reading List 2

anima	aṇɨmwa	aṇ ʷʲɨ mʷa	mangroves
manyingwunya	mwañɨŋwɨña	mʷaⁱñɨŋʷʷʲiña	wild fig
naniwurrilana	nanɨwɨřɨḻana	nenʷʲiwuřɨḻena	two men drowned
awiyida	awɨyɨta~awɨta	awiyita~awi:ta	straight
nangkangmina	naŋkaŋmɨna	nᵃʲeŋkᵃʲeŋmina	thief
yiwayiba	yɨwapa	yuwᵉʲeⁱ:pa	ant
ningwarrka	nɨŋwaṙka	nuŋʷaṙka	my father
kirriribarrka	kɨřɨrɨpeřka	kɨřiripeřka	you all come ashore
dikwurdikwurda	ṯɨkwɨṭɨkwɨṭa	ṯukʷuṭukʷuṭa	baptised woman
wulyarra	wɨlyaṙa	wʲʷʲulyaṙa	middle
nangangilana	naŋaŋɨḻana	neŋᵉʲaŋiḻena	they panted
dinina	ṯɨṇɨṇa	ṯɨṇɨṇa	mosquito
diyakirrarra	ṯɨyakɨřařa	ṯiyeⁱkiřeřa	happy woman
mawulyilyikwa	mwawɨlyɨlyɨkwa	mʷawʷʲilyilyukʷa	berry
nyarrngwukwajingwa	ñařŋwɨkwajɨŋwa	ñarŋʷukʷaⁱʈuŋʷa	sulk!
alakana	aḻakana	aḻakena	these two here

warningwarribirra	waṇɨŋwařɨpɨřa	waṇuŋʷeřipiřa	anybody
dilingana	ʈɨl̪ɨŋana	ʈɨl̪ɨŋena	salt
wurriwayiba	wɨřɨwapa	wuřuwˀʲi:pa	parrot
ngarringirarrimajina	ŋařɨŋɨrařɨmajɨna	ŋařɨŋireɾimʷaʲʈina	we dried our clothes in the sun
awarridada	awařɨʈaʈa~awařaʈaʈa	aweɾˀaˀiʈaʈa	rust-coloured
akilyangbarrarra	akɨlyaŋpařařa	ˀʲkilyˀeŋpˀeřˀeřa	forked stick
akana	akana	ˀaˀʲkena	but
dijiwarra	ʈɨjɨwařa	ʈiʈuwařa	bower bird
minyarnawa	mɨñaṇawa	miñaṇaᵘwa	stone axe
warningwanimbaliba	waṇɨŋwanɨmpwal̪ɨpwa	wanɨŋʷenʲumpʷal̪ʲupʷa	dingo
ningkiwarana	nɨŋkwɨwarana	nʲuŋkʷuwarena	you don't want it
niwarrikawarriyada	nɨwařɨkawařɨyaʈa	nuwˀeřikawˀeřiyˀaʈa	he was upset
awankanyarra	awankanařa	awankˀeneřa	always teasing
yimurnirna	yɨmwɨṇɨṇa	yimʷʷɨṇɨṇa	stingray
anyirra	añɨřa	ˀañiřa	mucous
ningwunamurra	nɨŋwɨnamwɨřa	nuŋʷunamʷʷɨra	he's growing up
yirrangka-baba	yɨřaŋkapwapwa	yiřaŋkapʷʔapʷa	because of the March fly
arndiwa	aṇʈɨwa	aṇʈuwa	tree
angayimba	aŋampa	ˀeŋˀʲimpa	place
kirribukwubardijana	kɨřɨpwɨkwɨpwaʈɨjana	kɨřupʷukʷupʷaʈiʈena	you three cheeky ones
yinimukwana	yɨnɨmwɨkwana	yinʷʷɨmʷukʷena	shellfish
bajanangi-manja	pwajanaŋɨmwañja	pʷaʈˀanaŋɨmʷañja	on the lantern
marliwiya	mal̪ɨwɨya	mal̪uwiya	emu
abuliwandiya	apwɨl̪ɨwanʈɨya	apʷuluwentiya	cover it!
ayabijaba	ayapwɨjapwa~ ayapɨjapwa	aʲyapʷiʈapʷa~ aʲyepiʈapʷa	separate
mamama	mamama	memema	this

Reading List 3

minimbaja	mɨnɨmpwaja~ manɨmpwaja	minimpʷaⁱʈa~ menimpʷaʈa	spear grass
marrbiyinda	mařpɨyɨn̪ʈa~ mařpwɨyɨn̪ʈa	meřpiyin̪ʈa mařpʷiyin̪ʈa	tree
nanarjinama	nanarjɨnamwa	nenarʈinamʷa	two men stood up
wurramurnda	wɨřamwun̪ʈa	wuřamʷʸ⁄ɨn̪ʈa	dog's flea
yikwulbanda	yɨkwɨl̪panta	yukʷulpenta	barramundi
amurn.da	amwɨn̪ta	amʷʸ⁄ɨn̪ta	shoulder
yinja	yɨñja	(yi)ñʈa	it's my turn
akwularrmbijina	akwɨl̪ařmpwɨjɨna	akʷʸ⁄ilarmpʷiʈina	beside
yiwalkwurra	yɨwal̪kwɨřa	yuwalkʷuřa	shellfish
arngkiwulyaba	arŋkɨwɨlyapwa	a(r)ŋkʷuwʸ⁄ilyapʷa	for all time
mijirrkwudarrba	mɨjɨřkwɨʈařpwa	miʈʲ⁄uřkʷʸ⁄ɨtarpʷa	salt water pool
yilyangmulimula	yɨlyaŋmwɨl̪ɨmwɨl̪a	ilyaŋmʷʸ⁄ɨl̪ɨmʷʸ⁄ɨl̪a	stonefish
angbur.da	aŋpwɨrʈa	aŋpʷʸ⁄ɨrʈa	waterlily
danganjaminjanikba	ʈaŋañjamwɨñjanɨkpa	ʈaŋañʈamʷiñʈenikpa	MF's sister
diyinda	tɨnta~tɨyɨnta	tinta~tiyinta	tree
armbulirra	armpwɨl̪ɨřa	armpʷʸ⁄ɨl̪ɨřa	jellyfish
darrikwanjirra	ʈařɨkwañjɨřa	ʈařukʷañʈɨřa	hardworking woman
mangkarrkba	mwaŋkařkpwa	mʷaŋkařkpʷa	fruit
ningkiyar.dana	nɨŋkɨyarʈana	niŋkiyarʈena	I returned
wulkwa	wɨl̪kwa	wulkʷa	only
amarmarra	amwarmwařa	amʷarmʷařa	sore
kwurn.dirra	kwɨn̪ʈɨřa	kʷun̪ʈɨřa	snake
karndirra	kan̪ʈɨřa	kan̪ʈɨřa	horn
yayarrandangwa	yayařan̪ʈaŋwa	yeⁱyʸ⁄ařʷʸ⁄en̪ʈaŋʷa	King Brown snake
nakbujina	nakpwɨjɨna	nakpʷiʈina	he squeezed it

nanambirarrina	nanampɨrařɨna	nenempirařina	two men waited
angka	aŋka	ᶜᵊeiŋka	other
dimamarrba	ṯɨmɨmařpa	ṯimemeřpa	quail (bird)
akwarrarrikba	akwařařɨkpa	akʷᵊᵊřeřikpa	turtle poles
nayikbajana	nakpwajana	neⁱ:kpʷaṯena	he stripped the bark off
yirarringanja	yɨrařɨŋañja	yirařɨŋaⁱñṯa	paperbark
nara kangkirrana	nara kaŋkɨřana	nara keŋkiřana	I did not listen
mambarrngarna	mampwařŋaɳa	mampʷařŋaɳa	how many?
yiwankija	yɨwaɳkɨja	yuwankija	baby wallaby
marngkirngkiwulyarra	marŋkɨrŋkɨwɨlyařa	mʷarŋkɨrŋkʷuwᵊlyařa	midnight
wunjirrikwaja	wɨñjɨřɨkwaja	wiñṯiřikʷaja	move!
nimungkwar.dina	nɨmwɨŋkwaṛṯɨna	numʷuŋkʷaṛṯina	he scavenged
angwurn.dikirra	aŋwɨṇṯɨkɨřa	aŋʷuṇṯɨkiřa	narrow
akbulkwurakayinga	akpwɨlkwɨrakayɨŋa	eⁱkpʷᵊulkʷurakeⁱᵊiyiŋa	smooth sand
yalangayikba	yaḻaŋakpa	yᶜᵊaḻaŋeⁱ:kpa	those two
nangwurrindina	naŋwiřɨṇṯɨna	naŋʷuřɨṇṯina	it melted
dangirndarra	ṯaŋɨṇṭařa	ṯaŋɨṇṭeřa	black cockatoo
ambirrkidarrba	ampɨřkɨṯařpwa	ᵊempiřkɨṯařpʷa	short and broad
nara kangkarrina	nara kaŋkařɨna	nara kaŋkařina	I did not run
ningamamikbina	nɨŋamamɨkpɨna	nɨŋᵊᵊememikpina	I dozed
angirnda	aŋɨṇṭa	aŋɨṇṭa	chin
nankarrnga	naŋkařŋa	neŋkařŋa	it broke
yabiyarkarbiya aribiribarrkba	yapwɨya(r)karpwɨya arɨpɨrɨpařkpa	yapʷiya(r)karpʷiya aripiripeřkpa	three goannas bush further down
ayikbarra	akpwařa	eⁱ:kpwařa	headache
yinjarrikina	yɨñjařɨkɨna~ yañjařɨkɨna	yiñṯeřikina~ yeñṯeřikina	towards the speaker

angki-wa	aŋkiwa	e̊ŋkʷuwa	to a far distance
yilarrngkwungma	yɨlaɾ̆ŋkwɨŋma	yilaɾ̆ŋkʷiŋma	putrid things

READING LISTS: STATISTICAL FREQUENCY OF GRAPHEMES

1. Consonants: initial in the syllable

Syllables		Test 1	Test 2	Test 3	Total
ba	p(w)a	9	5	13	27
	pe	1	2	2	5
da	ṯa	3	3	7	13
	ṯe	1	-	1	2
da	ta	-	1	2	3
	te	-	1	-	1
ja	ja	7	2	7	16
	je	-	1	3	4
	ja/e	-	1	-	1
ka	ka	12	4	7	23
	ke	-	2	-	2
	ka/e	3	2	2	7
kwa	kwa	8	2	4	14
	kwe	-	1	-	1
	kwa/e	-	-	1	1
la	l̥a	3	1	4	8
	l̥e	-	1	-	1
la	la	-	-	-	-
	le	-	1	-	1
lya	lya	2	1	3	6
	lye	1	1	-	2
	lya/e	1	-	-	1
ma	mwa	3	7	7	17
	me	1	2	3	6
	ma/e	-	-	1	1

na	[n̂a	-	1	-	1
	[-	-	-	-	-
na	[na	16	13	16	45
	[ne	1	2	4	7
	[na/e	-	1	-	1
nga	[nga	9	1	16	27
	[nge	-	1	-	1
	[nga/e	-	1	1	2
ngwa	[ngwa	1	2	2	5
	[ngwe	-	2	-	2
nya	[nya	-	3	-	3
	[nye	-	1	-	1
ra	[ra	4	-	5	5
	[re	-	2	-	2
rda	[ṭa	1	1	4	6
	[ṭe	1	-	1	2
rna	[ṇa	1	2	1	3
	[-	-	-	-	-
rra	[rra	8	9	12	29
	[rre	2	1	1	4
	[rra/e	-	1	1	2
wa	[wa	7	7	3	17
	[we	-	3	-	3
	[wa/e	1	2	-	3
ya	[ya	14	2	5	21
	[ye	2	1	1	4
	[ye/a	1	2	2	5
bi	[pi	6	2	10	18
bu	[pwu/i	7	3	2	12
di	[ṯi	8	4	5	17
	[ṯu	1	1	1	3
di	[ti	-	1	-	1
	[-	-	-	-	-

ji	ji	3	1	5	9
	ju	1	2	1	4
ki	ki	7	4	7	18
	kwu	-	1	3	4
kwu	kwi/u	6	4	7	17
li	l̰i	2	1	-	3
	l̰u	1	2	-	3
li	li	2	-	-	2
	lu	1	1	-	2
lyi	lyi	5	1	-	6
	lyu	1	1	-	2
mi	mi	4	2	4	10
mu	mwu/i	2	3	5	10
ni	n̰i	-	1	-	1
	n̰u	-	1	-	1
ni	ni	3	-	4	7
	nu	1	8	1	10
ngi	ngi	-	2	2	4
	ngwu/i	1	1	1	3
ngwu	ngwu/i	2	3	1	6
nyi	nyi	-	1	-	1
	nyu	-	1	-	1
ri	ri	1	1	2	4
	ru	3	-	-	3
rdi	ṭi	1	1	1	3
	ṭu	-	2	-	2
rli	l̰u	-	1	-	1
rni	n̰i	1	1	1	3
	n̰u	-	2	-	2
rri	rri	12	8	7	27
	rru	1	2	1	4

wi	[wi	1	2	1	4
wu	wi/u]	6	4	5	15
yi	[yi	2	4	8	14
	yu]	2	1	3	6

2. Consonants: final in the syllable

Graphemes		Test 1	Test 2	Test 3	Total
k		-	-	8	8
l		-	-	4	4
m		-	2	4	6
n	[n̲]	-	-	3	3
n	[n]	-	2	3	5
ng		-	5	11	16
n	[ny]	-	1	7	8
r		-	-	7	7
rn		-	1	7	8
rr		-	3	8	11
rrk		-	-	2	2
rm		-	-	1	1
rrm		-	-	1	1
rng		-	-	3	3
rrng		-	-	1	1

3. Short vowels which are syllables by themselves

Syllables		Test 1	Test 2	Test 3	Total
a	[a	4	7	10	21
	e	7	-	2	9
	a^i/e^i	1	1	-	2
	a/e]	2	3	1	6

4. Long vowels

Syllables		Test 1	Test 2	Test 3	Total
ayi	[e^i:	2	1	1	4
	Ce^i:]	3	3	2	8

5. Aggregate of consonants and vowels

Graphemes		Test 1	Test 2	Test 3	Total
b	[pw	16	8	14	38
	p]	7	4	12	23

d	[ɖ	13	8	14	35
	[t	-	3	2	5
j		11	7	16	34
k		22	12	27	61
kw		14	7	12	33
l	[ɭ	6	5	4	15
	[l	3	2	4	9
ly		10	4	3	17
m	[mw	5	12	18	35
	[m	5	3	8	16
n	[ɳ	-	3	3	6
	[n	21	26	28	65
ng		10	11	35	56
ngw		3	7	3	13
ny		-	7	7	14
r		8	3	18	29
rd		3	4	6	13
rl		-	1	-	1
rn		2	6	9	17
rr		20	24	34	78
w		16	16	9	41
y		21	10	18	49
a	[a	111	74	127	302
	[e	17	25	18	60
	[a/e	8	13	9	30
	[a^i/e^i	2	1	1	4
i	[i	60	43	56	159
	[u	12	26	10	48
	[i/u	1	1	1	3
u	[i/u	23	17	20	60
ayi	[e^i:	5	4	3	12

WORKSHEETS FOR THE WRITING LISTS

Orthographic	Phonemic	Phonetic	English
Writing List 1			
yabungwurra	yapwɨŋwɨřa	yapʷuŋʷuřa	sea wasp
yingwula	yɨŋwɨla	yɨ̽uŋʷula	trepang
marrakwa	mwařakwa	mařakʷa	tree coral
mingawa	mwɨŋawa	mʷɨ̽ɨŋaᵘwa	trochid shell
yilarda	yɨl̪aṭa	yil̪aṭa	mud creeper shell
alyakilya	alyakɨlya	alyakilya	mackerel
damaburna	ṯamwapwɨṇa	ṯamʷapʷɨ̽ɨṇa	coral trout
lingwurra	l̪ɨŋwɨřa	l̪uŋʷuřa	trevally
yimudirringwa	yɨmwɨṯɨřɨŋwa	yʷɨ̽mʷɨ̽ɨṯɨř(u)ŋʷa	catfish
dimirrimara	ṯɨmɨř(ɨ)mwara	ṯimiř(ɨ)mʷara	sandfly
dakwarrikwarra	ṯakwařɨkwařa	ṯakʷeřʷɨ̽kʷeřa	rainbow pitta bird
dijariwa	ṯɨjarɨwa	ṯiʧᵊɹuwa	friar bird
dimayikalya	ṯɨmakalya	ṯɨ̽ɨmeɪ:kalya	jabiru
yingakiya	yɨŋakɨya	yiŋakiya	magpie goose
amamayika	amamaka	ememe^{i}:ka	branch
yinimukalila	yɨnɨmwɨkal̪ɨl̪a	yinʷɨ̽mʷɨ̽ɨkal̪ɨl̪a	pine needles
burima	pwɨrɨmwa	pʷurumʷa	berry
mamurrinyinya	mwamwɨřɨñɨña	mʷamʷɨ̽ɨřiñiña	fruit
najirabina	najɨrapwina~ najɨrapɨna	na^{i}ṯirapʷɨ̽ina~ naṯɨrepina	they poured it
wulyingina	wɨlyɨŋɨna	wilyiŋɨ̽ɨna	catch it!
ningilyiwakana	nɨŋɨlyɨwakana	nɨŋilyuwakena	I went off alone
nimarijana	nɨmwarɨjana	nʷɨ̽mʷariṯena	he rubbed it with sand
naniwarribikama	nanɨwařɨpɨkamwa	nenʷɨ̽iwᵊɨ̽řipikamʷa	two men felt it
wiyakayina	wɨyakayɨna	wiyaka^{i}yina~ wiye^{i}ke^{i}yina	stay together!

yingarrikwulina	yɨŋařɨkwɨl̪ɨna	yiŋeřʷʲikʷul̪ina	she was sorry for
marriwa	mařɨwa	meřuwa	current
balimarna	pwalɨmaṇa	pʷalumʷaṇa	hat
mamalarribirra	mwamwal̪ařɨpɨřa~ mamal̪ařɨpɨřa	mʷamʷal̪eřipiřa~ memel̪eřipiřa	fighting spear
mardirdarra	maṭɨṭařa	maṭiṭařa	hot day
warnimadirra	waṇɨmaṭɨřa	waṇʲɨmeṭiřa	their mouths

Writing List 2

yiningburna	yɨnɨŋpwɨṇa	yiniŋpʷʷɨṇa	sea snake
wurriyamba	wɨřɨyampa	wʲuřiyempa	praying mantis
ngarrikwuyarrba	ŋařɨkwɨyařpa	ŋᵃʷeřʷʲikʷʲuyeřpa	we missed it
marliwiya	mal̪ɨwɨya	maluwiya	emu
wayi	wayɨ	weiː~waiː	oh!
yiyangkirijana	yɨyaŋkɨrɨjana	iyaŋkʲʲuriṭena	rub it smooth!
karningma	kaṇɨŋmwa	kaṇiŋmʷa	I will know
nilyabajina	nɨlyapwajɨna	nilyepʷaʲṭina	he is fighting
yirringwanja	yɨrɨŋwañja	yiřuŋʷaʲñṭa	we stopped
aningimanda	anɨnɨmaṇṯa	enʲʲuŋʲʲumeṇṯa	harpoon
dinini-murriya	ṯɨṇɨṇɨmwɨřɨya	ṯɨṇɨṇɨmʷuřiya	mosquito et al
marrikwurra	mařɨkwɨřa	meřʲʲukʷuřa	Long Tom fish
kwulingi-ma	kwɨl̪ɨŋɨmwa~kwɨl̪ɨŋamwa	kʷul̪ɨŋᵑ̊ɨmʷa	with a rudder
warningwarribirra	waṇɨŋwařɨpɨřa	waṇuŋʷeřipiřa	everybody
angambayikbirra	aŋampakpɨřa	aŋᵑ̊ʲʲempeʲkpiřa	flat and smooth
ningilyingkwanima	nɨŋɨlyɨŋkwanɨmwa	nɨŋilyʷʷɨŋkʷenɨmʷa	I painted
nara aldadangima	nara al̪ṭaṯaŋɨmwa	nara al̪ṭaṯaŋɨmʷa	I didn't go straight
naniyarringki-yada	nanyařɨŋkɨyaṯa	neniyařɨŋkiyᵑ̊eṯa	for the old man
yibukwaya	yɨpwɨkwaya	yʲʲupʷukʷaʲya	approaching one
yingwu-baba	yiŋwɨpwapwa	yʲʲuŋʷupʷʔapʷa	because of the crow
angbulirra	aŋpwɨl̪ɨřa	ᵑ̊eʲŋpʷʷɨl̪ɨřa	blunt

yinimaminda	yɨnɨmamɨnta	yinʷʸɨmeminta	woomera hook
kardiyi	kaṭɨyɨ	kaṭi:	hey!
yilyangi-manja	yɨlyaŋɨmwanja	yilyaŋʷʸɨmʷanṭa	on the shark
nara ayakiwarribikima	nara ayakɨwařɨpɨkɨmʷa	nara eʸ/ᵢyakʷuweřipikɨmʷa	I don't remember
akwarnjirrama	akwaṇjiřama	akʷaṇṭiřemʷa	sticky substance
kwubardana	kwipwaṭana	kʷupʷaṭana	I will camp out
arribaja	ařipwaja	eřipʷaⁱṭa	away from the speaker
ayalikwa	ayalɨkwa	eʲ/ᵢⁱyʸ/ₑlukwa	paperbark tree
dadiyiwangkwu-yada	ṯaṯɨyɨwaŋkwɨyata	ṯʸ/ₑṯiyuwaŋkʷiyʸ/ₑṯa	for the old woman
maldabirra	mwalṯapɨřa	mʷalṯepiřa	empty beach
wuwayijina	wɨwa(yɨ)jɨna	uwaⁱ(yi)ṭina	open it!
nikadirriwarnima	nɨkaṯɨřɨwaṇɨmwa	nikaṯɨřuwaṇɨmʷa	he started a fire with ashes
yimurrngwu-wa	yɨmwɨřŋwiwa	yʷʸɨmʷuřŋʷuwa	to the prune tree
awunyamba	awiñampa	awiñempa	angry
akilyarrba	akilyařpa	ʸ/ₑⁱkilyʸ/ₑřpʷa	light
ningingarndirrana	nɨŋɨŋaṇṭɨřana	nɨŋɨŋaṇṭɨřena	I don't like her
awulyikarra	awɨlyɨkařa	awʷʸɨlyikeřa	a long way to walk
wurrayikbuda	wɨřakpwɨṯa	wuřeⁱ:kpʷʸɨṯa	right-handed people
babulikana	pwapwɨlɨkana	pʷʸ/ₐpʷulɨkena	iron

Writing List 3

yilarrba	yɨlařpa	yiḷeřpa	plant
wabalbarrija	wapwalpwařɨja	wapʷalpʷariṭa	bust it open!
arjiyinga	arjɨŋa~arjɨyɨŋa	arṭi(yi)ŋa	stand up!
kingambana	kɨŋampana	kɨŋʸ/ₑmpena	I will bathe
awarmbuwarmba	awarmpwɨwarmpwa	awarmpʷuwarmpʷa	shell
yambadabirra	yampwaṯapɨřa~ yampaṯapiřa	yampʷaṯepiřa~ yempeṯepiřa	empty shell

nanirndirrka	nanɨṇṭɨřka	nenɨṇṭɨřka	two men got down
yirringakburrangina	yiřɨŋakpwɨřaŋɨna	yiřɨŋakpʷ̫ɨřaŋina	she found it
namarngkinama	namwarŋkɨnamwa	namʷarŋkinamʷa	they laughed
alyangma	alyaŋma	ᵊ̫elyeŋmʷa	southeast
wunjawudana	wɨñjawɨṯana	wiñṯaᵘwuṯena	carry it on the head!
nara akbikbarrngwuma	nara akpɨkpwařŋwɨma	nara ekpikpʷařŋʷumʷa	it's not too heavy to lift
yilarrngkiwarra	yɨḻařŋkɨwařa	(y)iḻařŋkʷ(u)wařa	portion
kirrandabukwuna	kɨřaṇṯapwɨkwɨna	kɨřaṇṯapʷukʷuna	they will finish it
wangkwurna	waŋkwɨṇa	waŋkʷ̫ɨṇa	fetch it!
nimalkayijika	nɨmwaḻkayɨjɨka	nɨmʷalkaⁱ(yi)ṯika	it flapped its wings
ningakbar.dima	nɨŋakpwarṯɨmwa	niŋakpʷarṯɨmwa	I got frightened
nambirrajina	nampɨřajɨna	nempiřaṯina	he looked after it
dilarrkbulala	ṯɨḻařkpwɨḻaḻa	ṯɨḻařkpʷ̫ɨḻaḻa	thin woman
niwamburrbujanga	nɨwampwɨřpwɨjaŋa	nuwampʷuřpʷiṯaŋa	they came out of
karndakajama	kaṇṭakajama	kaṇṭakaⁱṯema	I'll fish with a spear
nangalyangbarra	naŋalyaŋpwařa	naŋalyaŋpʷara	they hit her head
nakbilyarrikayina	nakpilyařikayina	neⁱkpilyᵊ̫ɨřikᵊ̫ⁱyina	he lay face down
dalangayikba	ṯaḻaŋakpa	ṯaḻaŋeⁱːkpa	those two over there
nara amandima	nara amantimwa	nara amenṯɨmʷa	I didn't make a fire with sticks
nangbajama	naŋpwajamwa	neŋpʷaⁱṯamʷa	he smelt it
nilarrmburrana	nɨḻařmpwɨřana	nɨḻařmpʷuřena	he shared his things
nimangkajika	nɨmwaŋkajɨka	nɨmʷeŋkaⁱṯika	he lifted it
maburambalba	mwapwɨrampwalpwa	mʷapʷ̫ɨrᵊ̫empʷalpʷa	flat
dimarngkambulyima	ṯɨmwarŋkampwɨlyɨmwa	ṯɨmʷarŋkampʷilyɨmʷa	two-faced woman

WRITING LISTS: STATISTICAL FREQUENCY OF GRAPHEMES

1. Consonants: initial in the syllable

Syllables		Test 1	Test 2	Test 3	Total
ba	p(w)a	1	10	11	22
	pe	-	-	1	1
	pa/e	-	-	1	1
ḍa	ṭa	2	7	2	11
	ṭe	-	-	2	2
	ṭ̂a/e	-	1	-	1
ḍa	ta	-	1	-	1
	te	-	-	-	-
ja	ja	1	2	5	8
	je	-	1	-	1
	ja/e	1	-	-	1
ka	ka	3	3	7	13
	ke	1	2	-	3
	ka/e	1	-	2	3
kwa	kwa	1	2	-	3
	kwe	2	1	-	3
la	ḷa	2	-	6	8
	ḷe	1	-	1	2
la	l̂a	1	-	-	1
	le	1	-	-	1
lya	lya	4	1	2	7
	lye	-	2	1	3
ma	m(w)a	8	12	13	33
	me	3	3	1	7
	ma/e	2	-	-	2
na	ṇa	-	-	-	-
	n̂	-	-	-	-
na	na	8	8	14	30
	ne	1	1	2	4
nga	nga	3	2	4	9
	nge	1	-	-	1
	nga/e	-	2	1	3
ngwa	ngwa	1	1	-	2
	ngwe	-	1	-	1
nya	nya	1	1	-	2
	nye	-	-	-	-
ra	ra	1	2	2	5
	re	-	-	1	1
	ra/e	1	-	-	1
rda	ṭa	2	-	1	3
	ṭe	-	1	-	1

rna	ṇa	2	1	1	4
	-	-	-	-	-
rra	rra	7	6	6	19
	rre	-	2	1	3
wa	wa	5	5	6	16
	we	-	1	-	1
	wa/e	1	-	-	1
ya	ya	2	6	-	8
	ye	-	2	-	2
	ya/e	1	4	2	7
bi	pi	3	4	6	13
bu	pwu/i	3	5	7	15
di	ti	4	3	-	7
	tu	2	-	2	4
di	ṭi	-	-	1	1
	ṭu	-	-	1	1
ji	ji	1	2	4	7
	ju	-	2	-	2
ki	ki	3	3	4	10
	kwu	-	2	1	3
kwu	kwu/i	1	5	1	7
li	ɬi	3	1	-	4
	ɬu	-	1	-	1
li	li	-	2	-	2
	lu	1	-	-	1
lyi	lyi	1	1	1	3
	lyu	1	-	-	1
mi	mi	1	1	-	2
mu	mwu/i	4	2	-	6
ni	ṇi	-	1	-	1
	ṇu	-	1	-	1
ni	ni	1	6	3	10
	nu/i	3	3	3	9
ngi	ngi	2	2	1	5
	ngwu	-	4	-	4
ngwu	ngwu/i	3	2	1	6
nyi	nyi	1	-	-	1
	nyu	-	-	-	-
ri	ri	1	1	-	2
	ru	2	-	-	2
rdi	ṭi	1	2	1	4
	ṭu	-	-	-	-
rli	ɭu	-	1	-	1
rni	ṇi	1	1	-	2
	ṇu	-	2	-	2
rri	rri	4	7	2	13
	rru	4	3	-	7

wi	[wi]	1	2	-	3
wu	[wu/i]	1	3	2	6
yi	[yi]	7	8	5	20
	[yu]	1	3	-	4

2. Consonants: final in the syllable

Graphemes		Test 1	Test 2	Test 3	Total
k		-	2	6	8
l		-	2	3	5
m		-	2	6	8
n	[n]	-	1	1	2
n	[n]	-	1	1	2
ng		-	8	5	13
n	[ny]	-	2	1	3
r		-	-	2	2
rn		-	2	2	4
rr		-	3	4	7
rrk		-	-	1	1
rm		-	-	2	2
rrm		-	-	1	1
rng		-	-	2	2
rrng		-	-	1	1

3. Short vowels which are syllables by themselves

Syllables		Test 1	Test 2	Test 3	Total
a	[a]	1	5	3	9
	[e]	1	3	1	5
	[a/e]	-	1	1	2
	[a^i/e^i]	-	2	-	2

4. Long vowels

Syllables		Test 1	Test 2	Test 3	Total
ayi	[e^i:]	-	-	-	-
	[C e^i:]	2	3	2	7

5. Aggregate of consonants and vowels

Graphemes		Test 1	Test 2	Test 3	Total
b	[pw]	4	14	18	36
	[p]	3	4	8	15

d	[t̪	8	11	6	25
	[t̂	-	1	2	3
j		3	7	9	19
k		8	12	21	41
kw		4	7	1	12
l	[l̪	6	4	7	17
	[l	3	2	3	8
ly		6	5	4	15
m	[mw	12	14	13	39
	[m	6	7	10	23
n	[n̪	-	3	1	4
	[n̂	13	19	23	55
ng		6	17	14	37
ngw		4	4	1	9
ny		2	3	1	6
r		5	3	9	17
rd		3	3	-	6
rl		-	1	-	1
rn		3	6	3	12
rr		15	21	16	52
w		8	13	8	29
y		11	24	6	41
a	[a	56	75	83	214
	[e	10	20	12	42
	[a/e	6	8	6	20
	[aⁱ/eⁱ	1	2	1	4
i	[i	37	48	30	115
	[u	14	22	7	43
u	[u/i	12	17	11	40
ayi	[eⁱ:	2	3	2	7

READING: STORY 1

<u>Mabakwu-langwa akwa Wurrandindi-langwa</u>

Mabakwa akwa wurrandinda nanimalyangkayina mijiyalyi-manja.

Biya wurrandinda nayama, "Yilikaja miyalkwu-wa, kwa," nayama.

"Ningiwara ngaya," nimiyama mabakwa.

"Mani-burra?" nayama wurrandinda.

"Ningkikikamarri-baba makarda mamama," nimiyama mabakwa.

"Mamu-da. Yibangabukwunama ningkani-da," nayama wurrandinda.

"Ningiwara ngaya. Yikiwurriyama malarri-manja," nimiyama mabakwa. "Mana ninganingma ningkakina ningkiwarnkarnnyarri-baba," nimiyama mabakwa.

"Ngayiwa na?" nayama wurrandinda. "Ningkwuwa-dangwa ningkiwurrariya ningkiwarnkarnnyarra ningkakina," nayama wurrandinda.

"Wulalika ayakwa akina wumba ngarringka diwankirrariya dibukwaya wiyida yingangkarrinama yakwuwa-wa," nimiyama mabakwa.

Niwandiyinga wurrandinda, narringarringka dibukwaya diwankirrariya yingangkarrina.

"Miyabana ningkimangayindimurra, diwankirrariya?" nayama wurrandinda.

Ngalaja nara kingiyangbini-da. Yingangkarra biya yingiwurdinga wiyida mardirdarri-manja muwarraka.

"Mabakwa," yingiyama diwankirrariya, "Ningkardada ningkakina mardidarri-wiya wumba likiya awarrwalyi-wa," yingiyama.

Ngalaja mabakwa numulikena akwa numamburra awarrwalyu-manja. Aburraja wurrendinda nuwawiyembada mabaku-wu-da, akwa nenuwardiyina arakbu-da. Biya mabakwa nuwanga wurrendindi-langu-manja eminda, nuwabuluwendingu-wiya wurrendinda.

"Yakayi! Eminda nganja!" nayama wurrendinda. "Merre-ka mema ngaya na?" nayama.

"Nganju-kwaba mema merra mamudakbu-manja," numiyama mabakwa.

"Ngawa arakba nungkwurnuwa!" yingiyama duwankirrariya, "Umba likaja nungkuwa mangkurrku-wa," yingiyama wurrendindu-wa, "umba nungkwaja likaja akinu-wa amarda," yingiyama duwankirrariya. Akwa nenilikena akwa ngawu-da.

Ena ngawa.

READING: STORY 2

<u>Makabaramu-langwa</u>

Nimilikanima makina makabarama naringandangima angalya namurakiwarrkwama. "Nara," niyama yikwurridangwa, "nara ningkwukwiyarrbana ningkwuwa, ngayiwa barra ngilyakiwana ngilikaja

ngayiwa," niyama. Nilikana nilyakwuwana nimurakwuwarrikwa akina angalya akina ngawa niringandangima nikwuwarrangima angalya yandilangwa nidirrirndinga yangaba. Yandilangwa yangaba nambilya Yilyangimanja arakba mukwumukwu-manja nangkwungkwulala yakina arakba nambarringa yakwujina kambirra akini-manja angalya. Aningawa.

READING: STORY 3

Nalikana arakbawiya niwarndakana kambirri-da. Niwarndakanima wurrakina bi...ya narradidirranga, narradidirrangimu...wa nayar.didanga angalyi-wa. Nawurrakilawurradina narridakamurra biya narrilikakbamurra wurrakina biya niwayijinimurra. Namurndiwayina arakba kamba wurrakina. Nakwayinima wurrakina biya yiyikwayiwa-wiya narrakwa aburra wumba aburraja yadidirringwarni-wiya. Wurrayabijaba angalya awarriwalya naminambilyamurra, aburra waka wurriyadi-langwa yimba aburraja wurrikwurdikwurdi-langwa. Akina awarriwalya naminilingkwarjinama, naminingarmbalinama angalya akina.

"Anana ningkwurri-langwa ningkwurra wujanamurra," nayama, "wumba yirraja ana yirrilangwa akwurdikwurda ana," nayama. Niwangmakayangimurra arakba kambirra wurrakina najangima akwala wumba narrimurndakamalyangi-murra karrawara. Biya nalyangirrakijaja wurrakina nalyangirraka wurranjarrki-yada wurrakini-murriwa mana narrajirrakama wurrakini-baba. Kamba wurrakina wurrikwurdikwurdi-wa nalyangirrakina wurrakina. Biya ngawa wurriwurrakibina warningakwujina niwalamburri-murrimanja wurribina nawarrkbadana. Narrabumukang-bijinama akarrnga wurriwarrkburrirra nakwulyarriyinama akarringi-da. Akinibungawu-da.

READING: STORY 4

Dirndenikba akwa naburradikba nenilikena yinungungwangba-wa. Nenalilikenu...wa. Nenuwardanga yaraja. Ngarningka yirukwujilangwa, yiniyerruwena, yimarndakuwaba, dijinungkwa, dingarna, yinungwerribirre-ka yinungungwangba nenabardakeyina. Nalyangburrukwune-ka alabura.

Nenikekiyuwarna ekalara. Nenumungkadinuma yaraja. Neniyaminjamu...wa. Yinginakburranga yamakwulyumuda yimarndakuwabu-da dirndenikbu-da. Yaka yingmungkalawudawarre-ka yadirrungwarne-ka yingmurra.

"Ngarnda," niyama, "yiningab'ayika yimarndakwuwaba yaka yingmurra, yimungkalawudawarr'ayika."

"A...a, amandangwu-da," yingiyama dirndanikba. "Yaka kwurrirdikwurrirda yaka," yingiyama. "Kwurrirdikwurrirda yaka, yadirringwarna yimarndakwuwaba, jarriya?" yingiyama.

Kamba arakba naburradikba naka nanjarringalyilya nara-ka niyangmarngkwuna-ka.

Kamba arakba niyama nakina, "Kwurrirdikwurrirda, ngarnda, ngayinyangwa aringka, ngarnda. Kwurrirdikwurrirda, ngayinyangwa mamudakba, ngarnda, kwurrirdikwurrirda, ngarnda, ngayinyangwa awa."

"Aba niyamarrkama-ayika naka, niyamarrkamurri-bana nardijajimurra? Nikwikwangbamurra yaka yimarndakwuwaba. Ningkwulangwa kijanamurra ningkana mamudakba yiya aringka yiya yinimalya yiya awa adiniba wumba yangminjada-ayika arakba. Kaba! Yakilikaja arakba angalyi-wa," yingiyama.

Story 1: free translation

About the Legless Lizard and the Mouse

The legless lizard and the mouse played on the beach. The mouse said, "Come, let's go to the low tide area." "I don't want to," said the lizard. "Why not?" asked the mouse. "Because you are not familiar with the sea," said the lizard. "That doesn't matter! You can carry me on your head," said the mouse. "I don't want to. You would push me over on a stone," said the lizard. "I know you are always argumentative." "Me?" said the mouse, "You are the bad one—always fighting." "Stop talking because Duwankirrariya is approaching and running straight towards us," said the lizard.

The mouse looked and they both saw Duwankirrariya running. "What do you want, Duwankirrariya?" asked the mouse. She did not speak. She ran and climbed straight up the hot casuarina tree. "Lizard," she said, "you are hot during the day so go to the shade." The lizard went and stayed in the shade. The mouse fought the lizard and they hit each other. Then the lizard bit the mouse on the nose as he bent over. "Ouch! My nose!" said the mouse. "This is my blood, is it not?" "Mine, too, on the tail," the lizard said to him.

"Now you two!" said Duwankirrariya. "You go to the pandanus tree," she said to the mouse, "and you (the lizard) go to the grass." And the two of them went. That's all.

Story 2

The shark ray went, cutting the way open. He crossed to the other side. "No," said the swordfish, "you have a blunt (nose). I'll go first and lead the way." He led and crossed to the place on the other side. Once there he cut open a place and descended. He stayed in the south, in the deep sea, and sat down and meditated. And so he lives there at that place.

Story 3

They went fishing with spears and kept on spearfishing before returning home. After returning home they cooked the fish and kneaded the flesh (of the stingray) and ate it. They shared small ones with some people and big ones with others. These people lived separately in a shady place away from the ordinary people and belonged to a sacred place.

The shade grew and hollowed out that place. "This is yours. Eat it," they said, "but we own this sacred place." They sat together and ate some (of the fish) but put much of it up on high. And then they got angry with the ordinary people over the gift and the ordinary people got angry with them because they came from another place and settled there. These people then polished and showed their teeth. Their teeth shone. That's the finish.

Story 4

His mother and her son went (hunting) for edible bush animals. And they kept on going and killed a goanna, a bandicoot, a native cat, a blue-tongue lizard, an echidna and a snake and collected all kinds of bush animals. The paperbark container was filled!

They followed the burnt-out countryside and dug for goanna. They continued doing the same thing. His mother found a really big blue-tongue lizard—big and fat and beautifully coloured. "Mother," he said, "that's a really good blue-tongue lizard—it's so fat." "Oh, that's true," said his mother, "this is a big blue-tongue lizard, isn't it?"

And so her son, a young boy, praised her and said, "Blue-tongue lizard, mother, the head for me, mother. Blue-tongue lizard, mother, the tail for me, mother. Blue-tongue lizard, mother, the liver for me."

"Why does he keep on calling out? The lizard is a big one. You will eat the tail, the head, its fatty flesh and liver but stop talking! Be quiet! We'll go on home," she said.

READING LIST: 2 Reader: Roberta Yantarrnga

anima	akilyangbarrarra
manyingwunya	akana
naniwurrilana	dijiwarra
awiyida	minyarnawa
nangkangmina	warningwanimbaliba
yiwayiba	ningkiwarana

ningwarrka
kirriribarrka
dikwurdikwurda
wulyarra
nangangilana
dinina
diyakirrarra
mawulyilyikwa
nyarrngwukwajingwa
alakana
warningwarribirra
dilingana
wurriwayiba
ngarringirarrimajina
awarridada

niwarrikawarriyada
awankanyarra
yimurnirna
anyirra
ningwunamurra
yirrangki-baba
arndiwa
angayimba
kirribukwubardijana
yinimukwana
bajanangi-manja
marliwiya
abuliwandiya
ayabijaba
mamama

READING: STORY 2

Reader: Carla Mamarika

Makabaramu-langwa

Nimilikanima makina makabarama naringandangima angalya namurakiwarrkwama. "Nara," niyama yikwurridangwa, "nara ningkwukwiyarrbana ningkwuwa, ngayiwa barra ngilyakiwana ngilikaja ngayiwa," niyama. Nilikana nilyakwuwana nimurakwuwarrikwa akina angalya akina ngawa niringandangima nikwuwarrangima angalya yandilangwa nidirrirndinga yangaba. Yandilangwa yangaba nambilya Yilyangimanja arakba mukwumukwu-manja nangkwungkwulala yakina arakba nambarringa yakwujina kambirra akini-manja angalya. Aningawa.

WRITING LIST 3 Writer: Roberta Yantarrnga

yilarrba
wabalbarrija
arjiyinga
kingambana
awarmbuwarmba
yambadabirra
nanirndirrka
yirringakburrangina
namarngkinama
alyangma
wunjawudana
nara akbikbarrngwuma

nara amandima
nangbajama
nilarrmburrana
nimangkajika
maburambalba
dimarngkambulyima

yilarrngkiwarra
kirrandabukwuna
wangkirna
nimalkayijika
ningakbar.dima
nambirrajina
dilarrkbulala
niwamburrbujanga
karndakajama
nangalyangbarra
nakbilyarrikayina
dalangayikba

WRITTEN STORIES

Writer: Roberta Yantarrnga

Story 1

Warna wurriwarda niwakbujingwuma amardi-manja nanimijangima yimanda niwarrangbama yinimamuwa. Biya nidirrirnda-manja arakba aburraja wurriwarda nalikana namungkadina yakina yinimamuwa akwa niwalyibarna

Story 2 Naka naningkwarba nilikana akwalyi-wa anilangwu-ma dingka ningwurrkwana akwalya. Biya ningarikwumurni- wa narrikba, biya nilawurradina angalyi-wa, niliraka angwura akwa nidaka biya nijanga akina akwalya

Story 3

Warna wurriyikwayiwa akwa wunaningkwarbu-kiya

CLASSIFICATION OF READING ERRORS

Reader: Maxine Mamarika

(i) incorrect reading of the graphemes

List 1	biya	as	ba
List 3	ji	"	jiyi
	ang [eng]	"	aring
	kang [keng]	"	kang

Story 1	ning+ka	"	ninga
Story 3	la	"	lya
Story 4	a	"	ya

(ii) metathesis/reversal of graphemes or syllables

List 1	li+ka	"	kwu+la*
	wa+rri	"	wi+rra* [wurra]
List 3	ki+rra	"	ka+rri
Story 3	ji+rra	"	ja+rri [jerri]

(Note: The correct phonological changes from 'i to u' and 'a to e' have been applied when syllables were reversed.)

(iii) omission of one syllable when two syllables have the same initial consonant

List 2	ma+ma+ma	"	mama [mema]
Story 1	ma+ma+ma	"	mama [mema]

(Note: The short form is correct.)

(iv) omission of a reduplicated morpheme

Story 3	di+di	"	di

(v) substitution of another grammatical form

List 1	nga	"	ngam
List 2	na	"	ni [nu]*
List 3	wun	"	nin
	na	"	ni
	yi	"	a
Story 1	wiya	"	da
	neni	"	yini
Story 2	na	"	nama
Story 3	min	"	ø
	ja	"	jayina
	ma	"	ø
Story 4	-da	"	ø

(vi) substitution of one word for another

List 2	manyingwunya	"	mangiyiwanga
List 2	yiwankija	"	yakwaja
Story 1	miyalkwu-wa	"	mijiyalyi-wa
Story 3	niwalamburri-	"	niwalyibarni-
Story 4	kijanamurra	"	kinijaya
Story 1	mana	"	ø

(vii) error/omission/insertion because another syllable has been called wrongly

List 1	ng	"	nga
Story 3	na	"	niw [nuw]
	ka	"	kwa
Story 4	a	"	wa

CLASSIFICATION OF WRITING ERRORS

Writer: Roberta Yantarrnga

(i) incorrect writing of the graphemes

List 1	li	as	lyi (twice)
	nyi	"	mi
	rdi	"	di
List 2	rning	"	ning
	kiya	"	ka
	rdi	"	di
	kwarn	"	kwan
	rda	"	da
	rni	"	nu
	ngarn	"	warn
List 3	ja	"	jiya
	ar	"	a
	nirn	"	ni
	marng	"	mar
	larrng	"	larr
	rna	"	na
	bar.	"	ba
	burr	"	birrk
	la	"	lya
	man [men]	"	min
	marng	"	mar
Story 1	rrirn	"	rrin
Story 2	Ø	"	ngi
	rni	"	nu
Story 3	wum	"	um
Story 4	kwa	"	wa
	ma	"	na
	rring	"	rri

(ii) metathesis/reversal of graphemes or syllables

List 1	lyi+wa	"	wulya
Story 2	ra+ka	"	ka+ra

(iii) error when two syllables have the same initial consonant

Story 4	di+rra	"	rri+rra

(iv) no errors

(v) no errors

(vi) no errors

(vii) errors in the two-syllable sequences 'ayi' and 'iyi' Control words:

List 2	wayi	"	wa
List 3	kayi	"	ka

Other words:

List 1	mayi	"	ma (twice)
List 2	bayik	"	ba
	rdiyi	"	rdi
	rrayik	"	rrik
List 3	ngayik	"	ngak

(viii) errors in the high vowel following Cw

List 2	kwu /kwi/	"	ki
	ngwu /ngwi/	"	ngi

(ix) errors in the high vowel following /w/

List 2	wu /wi/	"	wi
List 3	wu /wi/	"	yi
Story 2	wu /wi/	"	wi

(x) errors in the high vowel following 'm' and 'b'

List 1	bu /pwi/	"	bi (three times)
	mu /mwi/	"	mi (three times)
List 2	bu /pwi/	"	bi (three times)
List 3	bu	"	bi (eight times)
	burr	"	birrk

Story 1	bu	"	bi (twice)
	mung	"	ming
Story 2	mu	"	mi
Story 3	bu	"	bi
Story 4	bu	"	bi (twice)

(xi) errors in the high vowel preceding a rounded consonant

Within the morpheme:

List 1	dirr	"	durr
	ri	"	ru (twice)
List 2	yi	"	yu
	rni	"	nu
Story 2	ri	"	ru
Story 4	yi	"	yu (twice)
	li	"	lu (twice)
	ji	"	ju

At morpho-phonemic boundary:

List 1	ni	"	nu
List 2	ki	"	kwu (twice)
List 3	ni	"	nu
	ki	"	kwu
Story 1	ni	"	nu (twice)
Story 2	lyi	"	lyu (twice)
	rri	"	rru
	rni	"	ru
Story 4	ni	"	nu
	ji	"	ju

(xii) one word has been substituted for another

List 2	kwulingima	yinguma

SAMPLE OF ORTHOGRAPHY

Story 1:

Mabakwa akwa wirrandinda nanimalyangkayina mijiyalyi-manja.

Biya wirrandinda nayama, "Yilikaja miyakwi-wa, kwa," nayama.

"Ningiwara ngaya," nimiyama mabakwa.

"Mani-birra?" nayama wirrandinda.

Story 4:

Nanikakiyiwarna akalara. Nanimingkadinima yaraja. Naniyaminjami...wa. Yinginakbirranga yamakwilyimida yimarndakiwabi-da dirndanikbi-da. Yaka yingmingkalawidawarra-ka yadirrngwarna-ka yingmirra.

Stories for Writing by Aborigines:

Yaka yimanda niwarrangbama yinimamiwa mijiyalyi-manja abirraja wirriwarda nanirringka yimanda amardi-langwa. Biya nalikana arakba wirriwarda mijiyalyi-wa yibini-wa niwabirangka yinimamiwa nanirringka arakba yibina yinimamiwa wirrakina wurriwarda.

Warna warningkwarba bilikwi-manja narrararikinama marra-ma. Wimba abirraja wirriyikwayiwa karrawara aka-manja narrarringkinama wirrakini-wa.

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Rabin, Chaim and I.M. Schlesinger. 1974. 'The influence of different systems of Hebrew orthography on reading efficiency'. In Joshua A. Fishman (ed.), *Advances in Language Planning*, pp.556-71. Mouton, The Hague. A very interesting article on the differences and difficulties in using alternative Hebrew alphabets. From this article came the idea of using alternative orthographies within the same story. Problems in testing are discussed.

Rudder, John. 1979. 'Diagnostic testing in languages with phonemic alphabets'. *Notes on Literacy* No. 28, pp.1-2. This testing is similar to what was done in Anindilyakwa. It is, however,

based on the order of teaching the symbols. Not much detail is given.

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ACER Word Identification Test, Australian Council for Educational Research, Hawthorn, Victoria 3122. These tests 'indicate what approach the child uses with words: is it predominantly a phonic or a whole word approach?' Test coding is in a quick, simple method for sight vocabulary versus phonic analysis. The layout and instructions have been used and adapted for the tests in Anindilyakwa.

Brennan Record for the Interpretation of Miscues, Reading/Language Centre, Wagga Wagga, N.S.W. 2650. A test of comprehension with useful coding for separating phonic errors into three classes.

Canberra College of Advanced Education, School of Teacher Education, Canberra. (Prepared by Mr. Don Phillips.) Some of the basic testing follows that of ACER but there is a more detailed method for coding errors. Included was 'Instruction for diagnostic phonic elements test (screen)'. As the strongest conditioning of Anindilyakwa allophones is by the following syllable, this example was helpful.

Domain Diagnostic Tests of Phonics, (no information as to the source). These are sample sheets of tests similar to ACER but showed the statistical frequency of consonants and vowels.

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Readability

The subject of 'readability' was investigated when choosing stories for reading. Readability as suggested by Flesch, Fry, SMOG (Cloze) et al, is based on such things as the number of sentences, number of words per sentence, the number of syllables per word, and was taken from random samples of texts. While these views did not always agree, they were helpful in pinpointing certain factors of which to be wary. (See *Resource Book on the Development of Reading Skills*, 1973, Education Department, South Australia, for an overview of the literature available.)

WORK PAPERS OF SIL-AAB
Series B Volume 12
December 1984

PREPARING VERNACULAR BEGINNING READING MATERIALS FOR THE NDJÉBBANA (KUNIBIDJI) BILINGUAL EDUCATION PROGRAM: SOME LINGUISTIC ASPECTS*

Graham R. McKay

0. INTRODUCTION

Ndjébbana (Kunibidji) is a rather complex language spoken by about one hundred and fifty Aboriginal people in and around Maningrida on the central north coast of Arnhem Land. Maningrida itself (Manayingkaríra in Kunibidji) is traditionally owned by Kunibidji speakers. Up until June 1982 I was working towards the implementation of a bilingual

*An earlier version of this paper was presented at the 6th Annual Congress of the Applied Linguistics Association of Australia, Canberra, August 1981. The present version has been slightly revised in the light of discussion at the Congress. The paper applies to the program as of the end of 1981.

education program in the language. The program was introduced into the classroom Easter 1981 after some years of preparation. An earlier stage of this preparation, the development of a workable orthography for the language, was previously reported on (McKay 1982).

Following approval of the orthography by the Department of Education's Orthography Committee in 1979, a small number of literacy workers were trained in the use of the orthography and began to write material at a variety of levels for publication and eventual use in the program. Initially this writing was unstructured, being largely used as an orthography training exercise. We worked on the basis that eventually we would need to have on hand as much literature as possible in line with the recommendation of O'Grady and Hale (1974: 9, Recommendation 21) to 'Flood the place with literature'. Children's own stories were taped and transcribed, both to provide printable material in the Experience Reader series (see sect. 8 below) and also to give some indication of the children's linguistic level, vocabulary and interests for the purpose of developing structured materials for the teaching of reading. It is to this process that we now turn.

Final responsibility for curriculum development in bilingual education programs in Northern Territory schools lies with the teacher linguists who are primarily teachers, with a minimum of linguistic training to enable them to work from materials provided by the departmental or other linguists (cf. McGill ed. 1980: 23-26). The linguists themselves are considered to be 'the local authorities on language matters for the Department' (McGill ed. 1980: 25). Thus the details of the formal approaches to vernacular reading instruction for Kunibidji children were worked out in discussion between the Teacher Linguist, Peter Jones, and myself, the Linguist. I will confine myself in the present paper largely to discussion of some of the linguistic issues that were found to influence the decisions made and the materials produced. There is no time here to examine linguistic structures in full. I will simply attempt to give an impression of some of the linguistic factors involved.

1. BROAD APPROACHES

Initially we were able to take advantage of reports from various areas of the difficulties experienced in using highly analytic approaches as the starting point with young Aboriginal children (cf. Christie 1976; Christie n.d.; Department of Education 1977: 30; Harris 1982: 15-16; McKay 1978: 17-20). Contrast the findings with Navajo in the U.S.A. (Holm 1980: 80-81). The major problems that had been found rested with the analytic skills required (e.g. to abstract a syllable from a word) and with the unavailability in many languages of enough short, minimally contrasting words to permit analysis and word building in any

interesting or meaningful way (cf. Glass 1978: 143). These problems, as far as we could see, would apply equally to Kunibidji. For instance, in teaching young English-literate adults to write Kunibidji I used key words (initially obtained from senior adults) to illustrate the contrasts between sounds (letters) which needed to be distinguished. I found that many of the clearest contrasts could not be used because one or other of the contrasting pair of items was unknown to these people. The problem could be expected to be more acute with the young children of these same adults.

Christie (n.d.: 1), basing his comments on research such as that of Harris (e.g. 1980), suggests that the predominantly 'visual' rather than 'verbal' thinking processes of Aboriginal children makes the learning of sight words more effective than 'phonics', which I take to be a term covering analysis and synthesis involving abstract units on either of a couple of phonological (sub-morphemic) levels - phonemes or syllables (cf. Glass 1978: 144). It was decided, in the Kunibidji program, to combine elements of four approaches:

(i) Language experience work in which captions and stories dictated by the children are written under their own pictures by the teacher and read back.

(ii) Breakthrough to Literacy approach in which sentences and words can be built up by the children using small cards without prior mastery of writing skills.

(iii) A structured set of Instant Readers (primers) to teach sight morphemes or words, based on a count of words and affixes used by the children themselves.

(iv) A phonic letter recognition strand is built into the reading workbook series *Ríd ngamángka ngaréndjeya*, along with the sight morphemes. We believe that some phonics is necessary to form the basis of word attack skills in reading and to lead to phonically based writing skills.

Some of the reasons for the above decisions will become more apparent as we outline some overall typological features of the language below. Note that similar considerations to those mentioned above have also influenced the choice of method for teaching English language and literacy to Aboriginal people in the Northern Territory (e.g. Breakthrough, Batchelor 1975; All's Well, Keppert 1981).

2. VERB STRUCTURES AND FORMS

Ndjébbana is a prefixing language. In the Australian Aboriginal context this means that affixation is not restricted to suffixation as it is in

the Pama-Nyungan languages which cover most of the continent, but also involves prefixes. In Ndjébbana verb suffixes mainly mark tense, while mood and pronominal agreements are marked by prefixes. Pronominal prefixes are obligatory on the verbs and indicate both subject (transitive or intransitive) and direct object of the verb. In a small number of 'ditransitive' verbs, like *wú* (VII) 'give' and *djébba* (I) 'deprive of', it is the indirect rather than the direct object which is marked by the pronominal prefix. Furthermore it is unusual, though by no means unknown, for the subject and object to occur as free form noun phrases in the sentence in addition to the obligatory bound forms. For instance in a count of a sample of children's stories the first person exclusive subject prefix *njarra-* occurred 165 times while the corresponding free form pronoun *njírrabba* occured only 20 times, and that mainly with the older children. Thus it is quite common for the one-word verb complex to constitute a whole sentence by itself. As a result items like subject, verb and object which, in a more isolating language like English, appear as discrete items on the page, in Ndjébbana are fused into an often long and formidable single form. The beginning Instant Reader series is structured around varying either the prefix or the verb root plus suffix while keeping the other constant in order to teach pronominal prefixes and verb roots as 'sight' morphemes and to begin training in segmentation into morphemes. The division between prefix and root is not overtly symbolised.

Even an apparently simple principle such as that just outlined presented its own linguistic problems. The system of verb conjugations in Ndjébbana is relatively complex. An analysis of almost two hundred verbs (McKay 1980) revealed that seventeen distinct conjugation classes (some with sub-classes) were needed to classify the verbs according to tense suffixes. Even this left seven irregular verbs such as *yó* 'lie, be', *yirrí* 'go', *nó* 'sit, be' and *djí* 'drink'. While we have not analysed the grammatical competence of children thoroughly it has become obvious that children and even young adults have not mastered the complexities of this system and tend to regularise unusual patterns. In some cases verbs of other conjugations are placed in Conjugation II which has a suffix *-na* for the Past 2 (remote past) tense and no suffix in the other tenses. The system of tense categories, incidentally, is similar to that found in Burarra and outlined by K. Glasgow (1964). For example we often encounter *barra-djórrkka-na* 'they took it' instead of the correct Conjugation XII form *barra-djórrkka*, or *barra-kkóndja-na* 'they cut it' instead of the normal Conjugation I form *barra-kkóndja-nga*. Interestingly all known verbs of Conjugation II are intransitive, unlike these additions to the class.

Alternatively verbs with suppletive forms may have one form generalised into other tenses by the children. For example some children use the future tense form *-móya* of the verb 'to eat', instead of the Past 1

(proximate past/present) form *-ba* or the Past 2 form *-bála*. Thus we often find a form like *barra-móya* meaning 'they are eating it' instead of the correct form *bárraba* as given in example 1 below.

In general, problem forms have been avoided where other complications also arose or the corrected adult forms were used where these were straightforward. In any case we have tried in the first twenty Instant Readers to use only a single tense, the Past 2 or remote past. Only with the verb *nó* 'to sit' did we not follow this pattern but used the Past 1 because of irregularities in other tenses. This variation has imposed some sequence of tense constraints on the use of this verb in any sort of connected narrative. In other words this verb in the Past 1 cannot be followed by any Past 2 verb form.

The major problems in the verbs, however, are not due to this plethora of conjugation classes but arise out of some phonological processes related to the movement of stress and vowel length, which, incidentally, is symbolised in the orthography using an acute accent. We cannot give full details at this point but examples 1 to 5 should give some idea of the phenomena involved. The general problem raised is the inability in some verbs to keep to a standard form of the verb root and/or of the pronominal prefix.

1. *ba-ya-móya* (VIIID)
   they-FUT-eat
   They will eat it.

   bá-rra-ba
   they-pl nonFUT-eat (Past 1)
   They are eating it.

   ba-rra-bá-la
   -eat-Past 2
   They ate it.

   kóma ba-ya-bá-ngana
   NEG they-IRREAL.-eat-Past 2 Neg.
   They didn't eat it.

2. *bi-yi-rí́ma* (VI)
   they(du)-FUT-hold
   They will hold it.

   bá-rri-rama
   they-du nonFUT-hold (Past 1)
   They are holding it.

bi-rri-rimé-ra
-hold-Past 2
They held it.

kóma bi-yi-rimí-ngana
NEG they(du)-IRREAL.-hold-Past 2 Neg.
They didn't hold.

3. *bi-yi-wála* (I)
they(du)-FUT- ascend
They will ascend.

bi-rri-wála (Past 1)
They are ascending.

bi-rri-wála-nga
-Past 2
They ascended.

kóma bi-yi-wala-ngóna
-Past 2 Neg.
They didn't ascend.

4. *ba-ka-djdjúwa* (VIII)
they-FUT- be sick/die
They will get sick.

ba-rra-djdjúwa (Past 1)
They are sick.

ba-rra-yawé-la
-Past 2
They died.

kóma djawé-la ba-ngkayína
(INFIN) they-do(Past 2 Neg.)
They didn't die.

5. *njana-wú-na-yana* (VII)
he me-give-Past 2-he
He gave it to me.

njandá-ka-wa-yana
he me-FUT-give-he
He will give it to me.

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Comparison of the forms presented in examples 1 to 5 will exemplify a number of the complications. While example 4 exemplifies a verb root in which stress may shift from one syllable to another on the root, depending on tense, regularly reducing any vowel without the major stress (plus length) to *-a-* but leaving the prefix form constant (apart from the modal *-rra-/-ka-/-yi-* alternation), examples 1 and 2 exemplify common verb roots from which the major stress may shift to the prefix initial syllable in the Past 1 tense. The prefixes for these verbs in this tense are thus not the same in form as for the more common pattern found in examples 3 and 4. Additionally there are some phonetic vowel harmony phenomena involved with unstressed vowels as seen with the dual forms in example 2 - *i* being the vowel characteristic of the dual in the prefixes. Finally example 4 exemplifies root initial stop gemination and lenition processes whose operation is determined by the presence or absence respectively (in non-initial position) of a following stressed long vowel, which is marked orthographically. This phenomenon has been dealt with in greater detail elsewhere (McKay 1980; forthcoming). It presents variant forms of a number of verb roots - those with stress shifting and initial stops. One final example of prefix variation brought about by stress shifting is given in example 5.

Initially the Past 1 tense was avoided in order to avoid stress shifting to the prefix and the resultant variant prefix and root forms. Verb forms in which root initial gemination of a stop had to be written were also avoided. Variant vowels heard as a result of phonetic harmonisation processes, however, are written as they are heard.

The more difficult or complex forms of the common irregular verbs were also avoided in the earliest materials. For instance it was a very easy choice with the verb 'to go' to use the Past 2 form *nga-béna* 'I went' rather than the Past 1 *nga-yirríya* 'I went' (with a difficult stress pattern) or the future *ngé-yarra* 'I will go' (with unusual prefix and stress shifting). With the verb 'to sit' the Past 1 form *njarra-nóra* 'we sat/are sitting' was preferred to the Past 2 *njarrúka-na* 'we sat' or future *njayúka-na* 'we will sit' (because of the unusual prefixes on these last two). Keeping to 'standard' prefix and root forms allowed us to vary prefix and root separately to teach each as sight morphemes in the Instant Readers.

In the Breakthrough to Literacy materials we plan to use separate prefix and root plus suffix cards to allow word/sentence building. As with the Instant Readers some of the more 'synthetic' conjugations, for which segmentation is difficult and interchangeability is restricted, will not be able to be used for this purpose, at least initially.

3. VOCABULARY CONTROL

It was mentioned above that an attempt was made to ascertain what

vocabulary is used by the children so that only familiar words would be used. This was done by recording a number of stories on tape from individual children and examining the vocabulary used. The familiar distinction between 'functors' and 'content words' (Gudschinsky 1974: 45 referring to Fries 1952) was observed and these two categories were counted separately. Furthermore, following Gudschinsky's view (1974: 49), we saw the most important frequency measure as one which counted how many different speakers used a particular item, rather than how many times it occurred in text. In fact a single occurrence of a word in text is sufficient to show that the word is familiar to that speaker. In point of fact we might almost summarise our practice by saying that almost all words which occurred in spontaneous children's speech were considered usable. Preference was given to the words used by the highest number of children, but for interest value it was also essential to use some of the less frequent content words. We assumed these were familiar to children because they were used, albeit rarely, in the speech of a small number of children. English borrowings were avoided where there was a Kunibidji equivalent but borrowings from other Aboriginal languages were often retained as being more familiar to the children in their multilingual environment than the often more complex Kunibidji form. Thus we have found the children using Kunbarlang *kudjun* and Kunwinjku *dalek* instead of Kunibidji *barnamarrákka* 'white clay', or Kunbarlang *mandorlddorl* instead of Kunibidji *rrayíya* 'bush watermelon'.

The notion of frequency of occurrence was seen to be problematic in another sense, given the use of a single type of data. Most of the stories collected on tape were cast in the first person exclusive with a scattering of third person forms. The stories mostly dealt with weekend hunting expeditions, encounters with devils, or sport. The narrow range of topics covered appears to be normal in Aboriginal school contexts. Christie reports (1976:40) that preferred stories at Milingimbi in language experience sessions were almost invariably related to mundane domestic activities - 'even the day one of the school buildings burnt down produced nothing'. These limitations of content, which proved rather difficult to overcome, meant that the tape recorder operator was not usually included in the events narrated. There is thus a dearth of first person inclusive and second person forms. There is also an almost totally uniform use of the Past 2 tense. These biases in the figures on frequency are presumably not related to the overall familiarity or frequency of particular categories in the children's speech but are due to limitations of data collection in terms of types of discourse and the social context of the act of recording. We did, in fact, stick to first person exclusive and third person forms in the Instant Readers. With three separate number categories for each this still gave an ample number of distinct prefix forms for the very early books.

4. GENDER CONSTRAINTS

The pronominal prefix system presented a further issue which influenced the construction of materials. This revolved around the gender distinction made in Kunibidji between masculine and feminine nouns and pronouns and had an effect on the sequencing of the introduction of vocabulary items and the types of sentences in which certain vocabulary items could be used. The masculine/feminine distinction is realised formally in the third person singular and in all persons of the dual. Each number category is to be discussed separately below.

4.1 IN THE SINGULAR

The third person singular feminine is characterised by distinctive pronominal prefix forms when it represents intransitive subject or transitive object, but not when it represents transitive subject. This constitutes some evidence for an element of ergativity in the bound pronominal system as I argue elsewhere (McKay 1981). Gender of a third person singular object is, however, only indicated when the transitive subject is also third person. We encounter forms such as those given in examples 6, 7 and 8.

The marking of feminine gender in these particular forms meant that it was necessary to be careful about the introduction of nouns of feminine gender unless we wanted to add these feminine prefix forms to the large range already covered. Common feminine nouns such as *bíbbo* 'crab' and *kíkka* 'mother, Mummy' could, in fact, be used without distinctive prefixes as long as they were used in transitive subject function or as transitive object only when the subject was not third person. Thus, for instance, the early Instant Readers used the plural prefixes *barra-* (third person) and *njarra-* (first person exclusive). These could function both as intransitive subject prefixes and as transitive subject prefixes with third person singular object. In the latter function, however, *barra-*, unlike *njarra-*, was restricted to use with a masculine object because a feminine object would need to be specially marked with the form *yabarra-*. In order to avoid having to introduce such forms at an early stage we were forced to use first person transitive subjects whenever the noun object was feminine.

6. *ka-nána* (VII)
   he/she him-saw
   He/she saw him.

   yaka-nána
   he/she her-saw
   He/she saw her.

dja-nána
you(sg) him/her-saw
You saw him/her.

7. *barra-nána*
they him-saw
They saw him.

yabarr-nána
they her-saw
They saw her.

njarra-nána
we him/her-saw
We saw him/her.

8. *ka-balákkana* (II)
he-returned
He returned.

ya-balákkana
she-returned
She returned.

barra-balákkana
they-returned
They returned.

4.2 IN THE DUAL

The next problem of gender to be discussed was discovered in the course of checking a story written by one of our literacy workers about herself and her husband in an encounter with a devil in the bush at night. Throughout the story she used the prefix form *njirri-* which I had always encountered as a first person exclusive dual masculine form referring to two males - though I had for some time intended to check its range of meanings. It contrasted with a form having prefix *njarra-* and suffix *-nja* which I understood to cover two females or one person of each sex in the first person exclusive dual. It was this prefix/suffix form which I had expected to see used in reference to a husband and wife combination. The third person forms *birri-* and *barra-...-nja* do in fact pattern just like this.

On checking with the lady concerned, however, it emerged that in the

first person the husband and wife combination is referred to as *njirri-* by the wife but as *njarra-...-nja* by the husband. I had worked largely with male informants and had thus obtained my wrong impression which had been reinforced by the analogy with the third person forms. The phenomenon is discussed in more detail in McKay 1979.

The two forms *njirri-* and *njarra- . . .-nja* are set out below, coupled with the verb *-bena* 'went', to illustrate the four broad sets of referential facts which they cover. It can readily be seen that the forms are based on a 'speaker plus one other' analysis, and that it is the sex of the 'one other' which determines the prefix form used. Thus the differences in the sex of the speaker can bring about differences in the overall reference of a given form with respect to sex.

'we two (exclusive) went'

	njirribéna	*njarrabénanja*
male speaker	two males went i.e. speaker + 1 male	one male & one female went i.e. speaker + 1 female
female speaker	one male and one female went i.e. speaker + 1 male	two females went i.e. speaker + 1 female

We had to ponder the implications of this variability for the book illustrations. It also raised the question of how a child, beginning to learn to read, perceives written material. Whose words are on the page? This could be important if the sex of the speaker determines interpretation. Is the sex of the teacher implicated and can it affect the way the material can be presented in class? In another context Sayers (1982) has documented the difficulty experienced by Aboriginal children in coping with 'disembodied' story characters who are not an integral part of the local society and kinship system. Young Aboriginal readers apparently have some general problems with the 'context-free' nature of written material in comparison with spoken language. It is a problem which is inherent in the nature of written material in all cultures (cf. Stubbs 1980:108-110).

5. DIALECTS

There are, in fact, several dialects of Kunibidji based on the Djówanga/Yírriddjanga and coastal/inland divisions. The differences between them are mainly lexical but also affect verb forms, etc. The matter has not been fully studied but a few examples can be given.

One literacy worker outlined in a book entitled *Ndjébbana Mándjad*

(Waybananga 1979) three groups of Kunibidji speakers - his own Yírriddjanga group *Kanakána* from upriver; *Mabárnad*, a Yírriddjanga group from Maningrida itself, in the river estuary; and *Márro*, a Djówanga group from the northern coastal area. The test word he used was 'fire'. Mabárnad people call it *yúya*, Kanakána people call it *ngayawárrwarra*, and Márro people call it *ngálngarda*. The children normally seem to use the first of these forms at school.

Other examples of a rough Djówanga/Yírriddjanga division in the coastal dialects are given in examples 9 and 10.

9.	Djówanga	Yírriddjanga	
	yána	*yéna*	'earlier today'
	marnawarrínjba	*kórnka/karrórnba*	(yam type)

10.	The verb root *-rlúrrabayi* (III) 'arrive' has a suppletive future tense form *-míba*.	The verb root *-rlúrrabayi* (III) 'arrive' forms all tenses regularly on the same root.

Finally there are some verbs for which the Djówanga dialect has an inflected form for the Past 2 Negative (formed by suffix) while the Yírriddjanga dialect uses an auxiliary construction. Both dialects use both types of Past 2 Negative in particular words (one per word) but the distribution is a little different. The Yírriddjanga uses slightly more auxiliary forms, which appear to be a simplifying innovation parallel to the gradual extension of 'weak' past tense formations in English and German at the expense of the 'strong' forms. See example 11.

11. *-rórradjdja* (I) 'to clean (transitive)/to clear'

Djówanga

Kóma nga-ya-rarraddja-ngóna
NEG I-IRREAL.-clean-Past 2 Neg.
I did not clean it.

Yírriddjanga

Kóma na-rórrdjdja nga-ya-ngkayína
NEG INFIN-clean I-IRREAL.-do (Past 2 Neg.)
I did not clean it.

Occasionally, too, there are forms which are simplified by younger adults and by children as in example 12.

12.

Older	Younger	
barrarókadjdjiba	*barraródjdjiba*	'children'
karrabba	*arrabba*	'and, like'
Ndjúdda	*Djúdda*	'Juda Point'
nbarrábarra	*barrábarra*	'big (masc. sg.)'

etc.

Our policy has been not to standardise one dialect or form rather than another, but to admit whichever form the writer uses in speech, provided only that the written form is an accurate phonemic representation of a genuine spoken form. This may even result in minor variation within a single work in particular words. This policy has followed the general inclinations of the literacy workers - though on occasion they will want to check a form with particular old people and defer to them in pronunciation. We can probably expect some indigenous standardisation to take place once literacy is more firmly established, but we cannot predict which directions such standardisation will or should take. The lack of standardisation at present permits a more phonic approach by new literates.

6. AUXILIARY CONSTRUCTION

One further point of relevance to producing natural Ndjébbana materials is the extremely common use of a type of auxiliary construction in which a general positional or motion verb is appended to a more specific verb within the same intonation contour and without pause between the two. In translation this auxiliary verb adds nothing to the meaning. It is possible for such a second verb to have its full force (e.g. sitting, lying, going) but in this case there will be a pause between the two. Some examples of the auxiliary construction are given in example 13.

13. a *Birri-walédjba birri-rekarawéra.*
They-paddled they-moved
'They paddled (canoe).'

b *Karrówa duram ka-rendjína ka-béna.*
many drums they-stood they-went
'There were many drums there.'

c *Nga-ngúdjeya nga-nóra.*
I-talk I-sit
'I am talking.'

d *Díl*karra *ngí*ya-na *ngí*ya-na.
Moon let's-look let's-sit
'Let's look at the moon (to determine what phase).'

e *Njirrikébba nji-yi-wákka. Njirrikébba nji-yi-wákka njí-yarra.*
We we-FUT-go back We we-FUT-go back we-will go
'We'll go back.'

f *Yá-nabo barra-yóra-nja.*
she-fell they-lay-dual feminine
'She fell on top of her mother.' (of calf and cow buffalo)

This auxiliary construction, though normal and almost obligatory in adult speech, does not appear to be so common in children's stories. It has been omitted from the structured readers partly because of this and partly because use of it would double the length of any sentence and produce a more forbidding reading task.

7. REPETITION AS A PROBLEM IN EDITING

One final feature, common to many Aboriginal languages, presented an editing problem for the Children's Experience Readers series. We aimed in these to edit out, where possible, excessive hesitation, repetition, English words etc. We needed to distinguish, however, between repetition which functioned like 'Um' in English, as a mark of hesitation, and repetition which carried significance of one of two kinds.

Firstly, in the absence of the reduplication processes productive in many Aboriginal languages, repetition may function in Kunibidji as a marker of duration or iteration as in examples 14 a and b.

14. a *'Nirrikébba níyarra budborl?' Njirriyángkana, 'I.'*

Njarrakkóya, njarrakkóya, njarrakkóya, njarrakkóya,

yaláwa njarrawolobéna kúl...

'Do you two want to go to the football?' We said, 'Yes.' Four days later (lit. 'we slept, we slept, we slept, we slept' - four times) we came to school...

b *Njírrabba njarrabéna ngána nakkáyala. Njarrawolabéna,*

njarrawolabéna, njarrawolabéna...

We were walking along on foot. We walked and walked...

Secondly repetition of part of a previous sentence at the beginning of a new sentence has a sort of connective function equivalent to 'then...' in English, as in example 15, in which the phrase meaning 'we'll cook it' is repeated in the second sentence.

15. *Yúya nayákama, yaláwa ngabadjórraba ngabayúkana. Ngabadjórraba ngabayúkana yaláwa ngabamóya ngabayúkana.*

'Get some firewood and we'll cook it and then (having cooked it) eat it.'

It is clearly not appropriate simply to edit out all repetitions which, by English standards, are superfluous. Their functions must be recognised, even though in the English translation these can be handled differently, without any repetition.

8. MATERIALS BEING PRODUCED

Apart from a variety of readiness materials and workbooks the program has been producing three main series of reading books for the children. These are:

Instant Readers - A series of beginning readers or primers (20 designed by the end of 1981, 40 intended in all) with strictly controlled vocabulary and structures. These are to be used to draw together and consolidate the week's reading instruction in various forms including language experience work, breakthrough, workbook exercises etc. There is one sentence and one illustration per page. In the earliest books these are one word sentences. Varying the prefixes and verb roots is designed as an introduction to the segmentation of verb complexes into morphemes.

Story Readers - A series using the same sequencing and the same controlled vocabulary as the Instant Readers, and designed to supplement that series. A further series of Photo Readers, again using the same controlled vocabulary and intended as a second supplementary series, was started in 1981.

Children's Experience Readers - A series of books (over twenty printed up to the end of 1981 with another thirty in various stages of production) each containing a story told on tape by a child, later transcribed by literacy workers and sometimes undergoing a little editorial modification to remove English words, excessive hesitation or repetition. These are at a variety of levels of difficulty and will be

used to extend the children's reading experience beyond the strictly controlled Instant Reader, Story Reader and Photo Reader series.

In addition the program is slowly building up a series of more advanced Adult Readers containing stories and other materials provided by or written by adults. These will be suitable for supplementary reading at advanced levels and have also been used for reading to adults to promote awareness of the program. A couple of photo caption books, a picture dictionary, a Christian song book, two comics in Kunibidji and English versions and a T-shirt are among miscellaneous items so far produced, the last couple being conceived and executed by the white teacher of the Kunibidji class in the school. Finally a regular community newspaper, *Manayingkarírra Djúrrang*, containing English, Kunibidji, Burarra and an occasional other language item, began publication in 1981.

It can be expected that experience in classroom use of the materials prepared will bring about future modifications. In addition further linguistic study will no doubt raise issues which will further determine the course of materials development. It is an exciting process.

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WORK PAPERS OF SIL-AAB
Series B Volume 12
December 1984

REPORTS ON WARLPIRI LITERACY WORKSHOPS

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0. INTRODUCTION

Approximately 700 Aboriginal people live at Lajamanu in the Northern Territory of Australia. Lajamanu is one of five major population centres for people speaking the Warlpiri language. These speakers number about 3,000, none of whom were literate in Warlpiri as recently as fifteen years ago. The orthography has been standardised since 1974, at which time a bilingual education scheme was instituted at Yuendumu, another Warlpiri community some 600 kilometres south of Lajamanu. In 1982, after numerous requests from the community, the Department of Education initiated a bilingual program at Lajamanu as well.

At the time of the inception of the Lajamanu bilingual program, there were very few Warlpiris who could read their own language even at a very rudimentary level. The rate of literacy for persons over forty years

was less than 1% (and is still estimated at between 1% and 5%). Due to carryover from English literacy, a number of the more capable English literates were able to "wade through" Warlpiri books, of which there were painfully few. Only a few adults had received any kind of formal instruction in Warlpiri literacy. That came from the previous SIL workers in the community, Lothar and Else Jagst.

There were three crying needs recognised almost immediately, the lack of any one of which would hamstring efforts at implementing bilingual education. These needs were (and, to a certain extent, still are): trained teachers who are fluent readers of Warlpiri, trained writers who can express themselves fully on paper in language, and a large body of stimulating reading materials.

In early 1982, a teacher linguist, Christine Nicholls, was assigned to the Lajamanu school. It was her responsibility to implement the bilingual program. At about the same time SIL assigned Lois Glass to join my wife Beverly and myself at Lajamanu to specialise in adult Warlpiri literacy. The result of this, on top of persistent efforts by Paddy Patrick Jangala, senior literacy worker at the school, can fairly be described as a literacy boom in Lajamanu which is still going on.

The following two reports describe in some detail literacy training workshops held at Lajamanu during 1982. Samples of materials used in the two workshops are included in the Appendices.

1. REPORT ON WARLPIRI LITERACY TEACHER TRAINING AT LAJAMANU

This report is a description of a Warlpiri training program in vernacular literacy which commenced on 4 March 1982. The original report was written in stages as the program developed and has been updated for this publication.

In late February I was approached by Margaret Osborn and Peter Spinks, both from the N.T. Dept. of Education, and asked to conduct a training program for the Warlpiri teachers currently working at the local school. It was intended that the course would parallel somewhat that being offered at Batchelor in vernacular literacy.

The course began with ten participants, five of whom were employed as teachers in the local school, three of whom were receiving instruction from Julius Waber (at that time on-site lecturer under the RATE scheme), and two others who were participating strictly for their own benefit.

I was ably advised and assisted by fellow SIL literacy worker Lois Glass and my wife Beverly. As the class was divided between those who were fairly advanced readers and those who were just beginning to learn, it was necessary to devote much time to individual instruction.

1.1 GOALS

We developed the course with the following general goals in mind: 1) to improve the reading ability of all the students, both beginning and advanced; 2) to teach spelling, concentrating on word and syllable structure; 3) to encourage the students to work to improve their fluency in reading books aloud, especially those people who are working in the school and are in a position to read books to the children; 4) to develop skills in creative writing and book production; and 5) to develop their ability to critically evaluate their own work and the work of others, with attention to the recognition of and correction of errors.

1.2 WEEK ONE

The previously mentioned course at Batchelor consisted of 48 hours of instruction divided into two eight-week periods of three hours per week. Due to constraints on my time, we compressed the timetable, the first half of the course running from 4 March to 2 April and the second half to be held later in the year (see section 2). We met five days a week from 11:00 to 12:30, or about 7½ hours per week, more than the minimum required by Batchelor. Attendance was excellent with six students present for all sessions, none of the rest missing more than two sessions.

We used a very eclectic approach in teaching this course. The only textbooks were six books which the students purchased for their own study. These books were the *Jijajikirli* series (Gospel of Mark chaps. 2-5), *Yipuruyamukurlu*, and *Nawakurlu*, all published by SIL. These books were selected for practice reading since we had sufficient copies of these on hand for everyone, and, being translated material of foreign subject matter, emphasis could be placed on reading for comprehension.

Days one and two were spent administering a number of tests designed to give some idea as to the students' capabilities in reading both Warlpiri and English. The first test was an English cloze test on the story "Lost," one of several developed by Ian Bachelor and used to test incoming students at Dhupuma and Kormilda Colleges. Spelling Test A was a Warlpiri spelling dictation test in which twenty words, randomly selected, were read aloud to the students with them writing the words down. Spelling Test B was also a Warlpiri spelling test. In this test there were fifteen pairs or triplets of words, the words in each set being minimal sets contrasting with each other in only one sound and letter (could be a digraph or trigraph). One word in each of the fifteen sets was selected and read aloud to them, and the participants were to circle that word on their printed papers. The fourth test was a flashcard recognition test of forty Warlpiri words, again randomly

selected. Test five was a creative writing exercise in which the students were shown a series of photos of a hunting trip and then asked to write as much of a story as possible about the photos. Test six was a reading test in which the students were asked to read onto a cassette tape four short selections of Warlpiri taken out of various books. Two of the selections were very simple, containing repetitions; the other two were more difficult.

The tests showed that basically we had two groups: one with fairly well developed literacy skills, one without. In the advanced group, five were the teachers (hereafter referred to individually as A, B, C, D, E) and the other was one of the RATE students (hereafter F). Students G, H, I and J comprised the beginning group. Our intention at this time was to re-administer these and other tests at the completion of the course to gauge progress. However, lack of time prevented complete retesting. Figure 1 shows the test results.

Figure 1: Test Results 3-4 March 1982

	English Cloze	Spelling: Test A	Spelling: Test B	Flashcards	Creative Writing	Reading: Fluency/ Accuracy
	1-40	1-20	1-15	1-40	1-10	1-5
A	-	16	14	34½	7	3/4
B	29½	4	15	38	6	3/4
C	37½	10	15	39	5	3/3
D	31	11	15	-	7	3/4
E	-	9	15	40	5	3/4
F	33½	-	-	38	6	2/3
G	29	1	11	12	1	1/1
H	26	3	8	22	2	1/2
I	3	1	6	5	2	1/1
J	8½	2	6	-	2	1/2

Day 3 was the first actual day of instruction. The first half of the period was spent reading through the *Yipuruyamukurlu* story. I had

previously recorded the story on cassette and I played this through twice. Then the class divided themselves into two groups, men and women, and those that could took turns reading the first two pages. The slower ones followed along with assistance from the others. The last half of the period, I discussed with them the differences between the English and the Warlpiri alphabets and also began discussion of digraphs and trigraphs.

Day 4 again began with the cassette recording of *Yipuruyamukurlu*, the idea being to demonstrate fluent reading style, if not perfect pronunciation. After this we divided into two groups with each one taking a turn at reading if possible. We, the tutors, sat in on these groups listening for troublesome words or phrases. Those who finished reading the third and fourth pages of the book went on to read the entire book to themselves.

After this I pointed out to the whole group a few of the words which had caused trouble or had been misread the previous day. These were words which had close minimal pairs both in sound and in spelling.

Then I went into a discussion of the difference between vowels and consonants, the difference being that with vowels the air flow from the lungs is unimpeded and in consonants the air flow is partially or completely impeded. I then began a discussion and demonstration of the processes involved in the production of speech sounds. I dealt primarily with the action of the lips, jaw, tongue, vocal chords and nasal passage. We did a bit of self examination to feel how these different parts function when we speak.

I then introduced and explained how we can represent the various sounds using face diagrams (cutaway side view). I used the overhead projector to draw pictures to represent the three sounds *p*, *m* and *mp*. Each pupil had blank face diagrams which they also filled in for the various sounds. The purpose of all this was to help them relate what is going on in their mouth to what they must put on paper when spelling.

After this, pupil A worked with H and I on their beginning exercises, as A wished to improve his skills as a teacher. The rest continued on with practice reading.

Day 5, I introduced the sounds/letters *k*, *ng* and *ngk*. The method for introducing these sounds was to first talk about words which have these sounds in them both initially and medially. I had previously prepared a list of words with these sounds which I handed out to the pupils (also done for the previous day's sounds; see Appendix A). Then using the face diagrams again, we discussed how these sounds were produced and how this set differed from Day 4 sounds (velar articulated rather than

bilabial articulated though not with the technical language used).

The beginning groups then began working on their materials. For them we began working through a book of Warlpiri dictations produced at Yuendumu, entitled *Nyampu Yimi Witapatu Ngulaju Kurdukurduku Yirrarninjaku*, "These Little Stories Are For Children To Write." It is basically a Gudschinsky-style primer with the controlled introduction of letters and sight vocabulary, relying mainly on the ability of the pupil to recognise syllable structures and make words out of these. A progress chart was started for each of the beginning students, as within the group the ability to read and to recognise the syllables, words and sentences varied. Pupil A again assisted with two of the beginners requiring much individual attention.

I administered two exercises to the advanced group. The first was a cloze word test in which I selected about fifteen words from the *p*, *m* and *mp* list. These were listed down the page with these three letters omitted from each word with blanks where they should be. No one missed more than two of these. The second of these was a comprehension check on the *Yipuruyamukurlu* book. I had formulated and typed out ten questions asking for mainly content information obtainable directly from the story text itself. I read through the list with them first as I was interested in their answers, not in their ability to read my questions. The results were very good with no one missing more than one. Most gave one word or phrase answers, but pupil C wrote out fairly complete sentence answers.

Day 6 started with a quick review of the six letters introduced. I pointed out to the students a list of about eight words containing these six sounds which were minimal pairs.

The beginning group continued on with their exercises.

The advanced pupils C and D recorded on to cassette the *Yipuruyamukurlu* story. We checked all the advanced pupils on their understanding of the face diagrams once again. Then we began our first attempt at creative writing. We discussed a variety of topics which we could write about. After a while one of them suggested writing about all the rain we'd had lately and the flooded creek. (See sample story in Appendix A.) This captured their attention and interest, and each one began writing his own story. As they finished they read them to each other or else to themselves.

In the remaining time I had them work on another cloze word test, this time a list of twenty words selected from Day 4 and Day 5 words. With six consonants to choose from, the work went more slowly and was left to complete on Day 7.

Day 7 was another review and checkup day for both the advanced and beginning groups. The first part of the period was spent with the whole group reading *Yipuruvamukurlu* aloud. The four advanced pupils alternated reading for the rest of the group. I then read through a second list of prepared questions on the story with everyone participating with the answers. The group showed much enthusiasm answering these questions. Then we divided into the two groups again.

The beginning group was dictated a list of words to spell in their notebooks, the words being taken from page one of the dictation exercises. Then they continued on with their exercises, sometimes working together, sometimes by themselves.

I also dictated a more difficult list of words to the advanced group, these words being taken from the word lists from week one, concentrating on the consonants covered to date. I then wrote the words on the blackboard and let them check their own spelling. Then they worked to complete Day 6 cloze word test and began work on an exercise to build words from the 18 syllables formed by *a*, *i*, *u*, *p*, *m*, *mp*, *k*, *ng*, and *ngk*. These two exercises were carried on into Day 8.

For those who had written stories about the local creek, I handed back type-written copies of their work typed as they had written them. They were instructed to add to, amend or correct their own stories as they wished after reading them to someone else. They also received copies of each other's stories to look at. I began working individually with pupil A who felt his story was complete, so we began making editorial changes as he felt they were needed. I showed him how to do such things as insert words, transpose words, delete sections, use commas and full stops, and combine words and affixes which belong together.

To summarise the first week, we (the tutors) were especially impressed by the level of enthusiasm shown by everyone. We experimented with a variety of methods and exercises, and for the most part the pupils cooperated fully. Two areas of reticence were evident, these being that most did not enjoy demonstrating their skills on the blackboard and some were reluctant to record on to cassette tape. But attendance was good (average of 8.4 per day out of 11 who came at least once). Progress and improvement was shown by all the pupils, advanced or beginning, the crucial thing with the latter group being their stick-to-it-iveness until the basics were mastered. Class periods averaged at least 1¼ hours per day, and each day I had to formally dismiss the group as none made a move to go on their own. I interpreted this as a good sign and trusted we could maintain that level of interest.

1.3 WEEK TWO

The second full week of instruction was also characterised by much enthusiasm and individual initiative. Attendance remained good, the daily totals being 11, 11, 8, 10 and 7. Because he had made the least progress thus far, student I began coming ½-1 hour ahead of time for individual instruction impossible for us to give otherwise. A few of the others on occasion came early, and now when they came, immediately commenced work on outstanding projects or spelling exercises.

Day 8 we arranged for Mr. Ian Sexton of the Bible Society to show the class a brief film on literacy efforts among Kriol speakers at Bamyili. He also explained some of the possibilities for the local translation of and subsequent printing by the Bible Society of Scripture-related materials.

As a group exercise we introduced the *Nawakurlu* story, playing it through once on cassette with everyone following along. Then the advanced students took turns reading aloud page by page until the whole book was covered.

The routine for the beginning group was fairly set now as they were all working through the Warlpiri Dictation Exercises at varying speeds. It worked out that by week's end, students G, H and J were at the same level (completion of all work through page 5). Student I had mastered through page 2, and student K, a late-starter, was still on page one. It was anticipated that students G, H and J would continue to outpace the other two as they had had more reading experience to begin with. One additional exercise used with this group in week 2 was oral dictation exercises in which they wrote either words or sentences as they were read.

For the advanced group Day 8 was basically a catch-up day for previously uncompleted work.

Day 9 the letters *j*, *ny*, and *nj* were taught using face diagrams and word lists as before. There was time allowed for free reading of *Nawakurlu* and the advanced group began working on a cloze word exercise on the new letters. Most all had by now finished their first stories, so one by one I began going through these with them to help them check on omissions, spellings and punctuation. I also began the teaching of closed syllables, as *ny* was the first letter so far to occur in this position.

Day 10 was another review and catch-up day. As a group activity aimed mostly at the advanced students, I did a blackboard exercise demonstrating how to attack long words containing many suffixes. I

chose words from the *Nawakurlu* book and wrote these one at a time on the board. The first step was to count and locate all the vowels to determine the number of syllables. The next step was to work carefully through each word from the beginning and mark each meaningful part, whether a word or a suffix. We went through about fifteen words in this fashion.

1.4 WEEK THREE

Day 11 the letters *w* and *y* were taught in the usual fashion. For the advanced group I had already typed up everyone's completed story. I passed copies of these out and allowed time for them to read them all. Efforts to provoke discussion on the stories were unsuccessful, the only comments being that they were all alright. It was felt that probably we would need to emphasize self evaluation of one's own style and work rather than group criticism and correction. There was, however, general agreement that student A's story was the best as well as by far the longest.

Day 12 was another review day. The whole group (those able to) took turns reading *Nawakurlu* page by page again. I gave the advanced group a list of ten questions on the story. This time I did not read through the questions with them. I had made up a crossword puzzle in which they were to place the answers. Most did the exercise with a minimum of difficulty despite at least one error in the crossword itself. In the remaining time they began writing a second story on the rainfall and its effects on the community.

Week 3 saw the addition of two students to the class, one who was just beginning to read and the other who had ability in English and who some while ago received tuition in Warlpiri. Attendance remained good with daily totals of 8, 11, 7, 12 and 11.

By week's end, four of the beginning students had progressed through page 11 of the dictation exercises which meant they could recognise and spell words containing the letters *a*, *i*, *u*, *m*, *k*, *y*, *p*, *l*, *n*, *j* and *w* plus a small number of grammatical functors. Student I had progressed through page 6, and students K and L were still working on page 1. Before a student was credited with mastering a particular page, he had to be able to read each page's sentences at random, and at least be able to form words from a list of syllables learned to date or even write the words from memory.

Lectures were given for the whole group (though mainly for the benefit of the advanced students) on the formation phonetically of the letters/sounds *rr*, *rd*, *r*, *l*, *rl*, and *ly*. We also began reading as a group *Jijajikirli* (Mark chap. 2). We covered the first half of the book

thoroughly and began the second half on Friday, leaving this section for the fourth week. The advanced students worked to complete their second set of stories, the theme for these being the poor condition of the road due to the rain and its consequences (sample story in Appendix A).

It was felt by all the tutors that it was necessary to have some outlet for these stories. Therefore, in conjunction with the school and the transition/year 1 staff, the Warlpiri teaching assistants planned to duplicate these books at school by hand in the form of large lap readers (two to three feet in length). These then could be read to the school children. Another project under consideration was to have each of the Warlpiri teachers be responsible to read one new Warlpiri book per week and then to read that book to various grade groups throughout the school. Again the purpose here was to give additional practice in the skill of reading.

1.5 WEEK FOUR

During week 4, two new students began attending. One was placed in the intermediate group and the other in the beginning. Attendance remained good with daily totals of 8, 13, 10, 11 and 8.

The new letters taught using face diagrams were *rt*, *rn*, *rnt*, *t*, *n* and *nt*. By week's end the intermediate group had completed exercises through page 17 of the dictation exercises. An auxiliary reading activity for this group was to have them work individually on a series of graded readers and to check these with one of the tutors when they felt competent.

Two spelling tests of randomly selected difficult-to-spell words were given to the advanced group. Scores on the two lists of twenty words each were as follows:

Figure 2: Spelling Test Scores

Pupil	Spelling Tests	
	#1	#2
A	15	-
B	9	4
C	13	12
D	13	15
E	10	12
F	5	4

These spelling lists were corrected in class and used as a teaching exercise. Both lists contained difficult and not always common words to spell and so provided a useful indicator of the student's ability to sound out words.

Week 4's writing exercise was to compose and send a letter by mail to a friend in another town. The group enjoyed doing this and seemed pleased by their ability to do so.

One other activity was begun, one designed to increase reading fluency and speed by breaking the habit of looking at the page one word at a time. Various short stories or parts of stories were printed on transparencies. A piece of cardboard was cut out so that a rectangular slit was left in it wide and long enough to reveal about one line of text at a time. By either flicking the overhead projector on and off or by sliding the cardboard or transparency, I could move at varying speeds down the story. This was done during two class sessions and seemed to be an effective method to teach them to take in as much as possible with one glance.

Spelling Test A was re-administered to four of the group. Scores are given in Figure 3. Comparing these scores with those obtained at the beginning of the course, general improvement can be seen. (F did not take the first test). The second column is a subjective evaluation on my part of the advanced group's reading ability. Student E proved exceptional in two areas: spelling and reading fluency. In fact, when reading for the group, she needed to be cautioned to slow down a bit so

that the beginning group could follow along! The rest in the advanced group proved able to read any piece of Warlpiri material with varying degrees of proficiency. Only pupils B and F had significant difficulties in decoding strange material, but once having been prompted, these two could also work their way through. Mainly all of these needed more and more practice in reading.

Figure 3: Scores on Spelling Test A

Pupil	Spelling Test A	1-10 Fluency
A	-	8
B	7	4
C	13	8
D	-	6
E	19	10
F	7	4

1.6 SUMMARY

By the end of the course a total of 30 hours of instruction had been given. A summary of the things accomplished is given here in reference to the goals set forth in section 1.1 of this report.

1) to improve reading ability: Rather a hard item to gauge. The advanced students all had a greater confidence in their ability to read and did not shy away from exercises in group reading, although one or two suffered a little embarrassment, due more I believe to their personalities than to their ability. The intermediate group who had command of enough letters and syllables to read simple books could be described as literate. The beginners did not yet have command of enough letters to read anything beyond the exercise pages. With all of the students, however, the significant factor in their development as readers was and is the development of an attitude which views the reading of books as an interesting and worthwhile exercise for their leisure time, an attitude which only a handful in the entire community have even in reference to English literature.

2) to teach spelling: Again the key is practice and more practice for them all. Improvement was demonstrated among the advanced students, and

the beginning and intermediate groups also were tutored on letters and on syllable recognition.

3) to increase reading fluency: The almost daily reading of the *Jijajikirli* and other reading books as a class activity sharpened the skills of the Warlpiri teachers and gave the others (even the beginners) an obtainable goal to work towards.

4) creative writing: We were pleased and encouraged by the three writing projects completed by the advanced group. We anticipated holding a creative writers workshop within the year and the development of a community newspaper to provide an outlet for writers and also to promote reading as an activity.

5) to develop the ability to critically evaluate their own and other's work: Only a little was done in this area. There is a cultural pressure not to criticize another's work. Among those beginning creative writing, most were now using full stops as punctuation and a few correctly used capital letters.

We were pleased with both the response to the course and the results. The beginning and intermediate groups will continue on, depending on their own level of motivation. It is hoped that those who are teachers will now be encouraged to put these skills into use at the school both by reading to the children and producing lap readers and other books.

Plans were then made to conduct a writers workshop later in the year, and a report of this workshop is given in section 2.

2. REPORT ON WRITERS WORKSHOP AT LAJAMANU

This report is a summary of activities during a writers workshop held at Lajamanu from 18 October to 12 November 1982. The workshop was held in conjunction with the local Warlpiri school and recently established Literacy Centre. Invaluable assistance was given by Christine Nicholls, teacher-linguist, whose presence ensured the smooth day to day running of the workshop and whose organisational skills are largely responsible for the Literacy Centre itself. Further able assistance was given by Lois Glass who worked with those teaching assistants and literacy workers whose skills were not developed sufficiently to participate in a workshop of this type but who wished to share in the overall learning atmosphere. A special note of thanks goes to the school staff who put up with the inconvenience of losing their teaching assistants for several hours each day.

We began the workshop with fifteen people either being recommended because of their jobs as teachers or literacy workers or because they

wished to participate on their own. During the four week period, five people either dropped out completely or attended so sporadically as to miss out on any significant level of instruction. There was little overlap between participants in this workshop and the previous one.

Whereas the earlier workshop was designed to augment the skills of fluent reading and spelling, this second workshop concentrated on creative writing skills. We were amazed to see how a number of the women displayed tremendous creativity and facility in their writing. We used one film of an Aboriginal legend to stimulate their thinking, but after awhile they began writing on things that interested them. During the final days of the workshop, we gave some basic instruction in translation theory and practice.

Since these workshops, there has been rapid development in the bilingual part of the school under the direction of Christine Nicholls. Six people were initially employed on a part-time basis as literacy workers charged with the task of developing materials for use in the school and in the community at large. The school bilingual program was initiated as a transition and year one program only, with plans to add an additional grade each year. Despite there being a great deal of material available through the bilingual programs at Willowra and Yuendumu, there is an ongoing need for locally authored books and readers. Thus the need for such training in creative writing.

2.1 APPROACH

Because we began with such widely disparate literacy skills, we embarked on a series of tests to determine the various levels. A full report on the testing procedures used appears in Appendix B. On the basis of the results, three of the participants were assigned to receive basic literacy instruction under Lois Glass, and it is anticipated that at a later date one or more of these may progress far enough to benefit from further workshop training. The others were divided into morning (11:00-12:30) and afternoon (1:15-3:00) groups meeting four days a week.

2.2 GOALS

The workshop had several goals at the outset: 1) to train the participants in writing expressively in Warlpiri, 2) to produce literature for use in the school and in a community newspaper, 3) to improve on self-editing skills such as spelling and punctuation and the need for multiple drafts and 4) for the less accomplished oral readers, improvement of reading fluency.

I had ordered nearly a dozen films in the hopes of using a few for inspiration viewing. As it turned out, only one film arrived in time,

but it was of excellent quality and provoked several good stories. We also planned one excursion with the younger school children to one of the nearby waterholes.

One thing of note was the initial reluctance of some participants to begin work on any particular assignment in Warlpiri. However once they were assured that we really did want them to write in Warlpiri and not in English, most responded well and without significant difficulties.

2.3 ACTIVITIES

Following is a day by day description of activities.

Day 1 We began with a discussion of the purposes and need for Warlpiri literacy. I discussed with them some basic rules for writing, adapting these mainly from material used at an SIL literacy workshop in Port Keats. We then discussed the various things that went on during the *Purlapa Wiri*, a Territory-wide Aboriginal ceremonial festival held at Lajamanu. Then they all began writing on one aspect of that week of dancing and singing. Worksheet 1 proved useful in that the participants saw how better pieces of writing tended to be longer and to put a picture in the reader's mind.

Day 2 Several people had already finished their stories, these tending to be fairly short. I had also written one in Warlpiri, so I used myself as a guinea pig to make a few teaching points on editing a story. I read mine aloud and encouraged comments, suggestions and corrections. There were plenty! As was the case throughout most of the workshop, people were very hesitant to comment publicly on someone else's work, so any editing was done privately with myself or with them helping each other in pairs.

Day 3 We completed Worksheet 2 on using specific rather than generic words. This also proved to be a useful exercise, well worth repeating at a later date.

Day 4 There was an unexpected visit from an artist from the Department of Education, so we spent the day learning about various art techniques and silk screen printing.

Day 5 We completed Worksheet 3, but the exercise provoked little response except for number 3 at the bottom. In the future I would incorporate this worksheet with worksheet 2. Those who had completed their *Purlapa Wiri* stories began work on stories concerning their jobs and families.

Day 6 We discussed the upcoming excursion to Catfish Waterhole and how

we could be observing the various activities there. We also had a look at various books at the Literacy Centre, examining them in particular in relation to the artwork. Preferred styles apart from ever-popular colour tended to be realistically executed drawings done in heavy black ink. There was little appreciation for childish drawings even if done by an Aboriginal artist.

Day 7 We went to Catfish Waterhole with the younger school children. Activities included finding bush tucker, swimming and chasing a small crocodile.

Day 8 Only two participants who made the Catfish trip attended but both of these completed first drafts. The one story was quite imaginative though riddled with spelling errors. Again this pointed to the importance of allowing maximum freedom from spelling and punctuation restrictions for those who might be creative but not yet proficient in basic writing skills.

Day 9 We watched the film *The Legend of Jinini*. I highly recommend this well-produced depiction of a Top End legend. This film was obtained from the Department of Education film library in Darwin.

Day 10 We went through Worksheet 5 on emotions. The second half of the worksheet was geared specifically to the previous day's film, and the participants were encouraged to consider the emotions of one of the characters during some highlight in the film and then to incorporate these emotions into their story. Evidence of this did come out in several of the stories.

Day 11 We went through Worksheet 4 on similes and metaphors. Only one example of a phrase or sentence metaphor was produced, and in subsequent writing, no such uses of simile or metaphor occurred. This may not be a natural feature of the language, or it may be one that needs further development.

Day 12 We went through Worksheets 6 and 7 on editing procedures. Both worksheets contained Warlpiri stories written with all punctuation and capitalization removed, and I believe it was a helpful exercise in raising their awareness of the importance of such things.

Days 13-15 We commenced the exercises in introductory translation principles, beginning with a few examples of poor translation. Five of the people did reasonably well on the exercise. One thing this exercise pointed out was a need for these people to have a bit of instruction in the grammatical structure of their own language as a basis for translating even simple stories into Warlpiri.

Day 16 Those with stories to complete did so. I repeated the oral reading samples test on three of the participants. Two of them commenced work on a story to translate into Warlpiri for use in the school.

2.4 MATERIALS PRODUCED

In terms of actual production, the following stories and items were written: nine stories based upon the recently held *Purlapa Wiri* where nearly a thousand Aboriginals from all over the country came to Lajamanu for a week of ethnic dancing and singing; five stories written about each person's family and job; five stories written about the excursion to Catfish Waterhole; five stories written about the film *The Legend of Jinini*; and five translated versions of a simple Bible story. This last item, though not in the original planning, came about in response to a request for an introduction to translation principles. Seven worksheets were completed, a number of these based upon worksheets used previously by SIL teams at Port Keats and Tinaroo Dam. Also completed was a seven-page translation exercise. (See Appendix B for copies of worksheets and translation exercises.)

Several workshop participants expressed a desire to see their work in print, and most if not all of these stories have been printed in a community newspaper. Following are English translations of some of the stories produced, one example on each topic.

Purlapa Wiri

In September, people gathered here in Lajamanu in preparation for the Purlapa Wiri. Lots of people gathered from the south, and from the north, and from the east, and from the west. Many came in trucks, buses and aeroplanes. They danced their own corroborees. They danced really well. Some danced the kangaroo dreaming, some others danced the bird dreaming and the fish dreaming. The people from Amata danced a sacred corroboree, and we threw dirt at them to ward off illness.

My Job and Family

My name is _____ Napanangka, and I work in the little children's school. I take care of the really little children, and I teach them to sing and to make books. They learn to speak Warlpiri and English at

school. I am the mother of one boy and one big girl. I also raised another woman's little baby. My husband Jupurrula carves many things such as boomerangs and coolamons for the teachers. The children we take hunting one by one, we and the teachers.

Trip to Catfish

A while back we took the children to Catfish. As soon as we got to Catfish and got down off of the truck, the children jumped into the water. We all were swimming. After that _____ Napanangka spotted a big clump of marnta [plant resin] in a tree. After she had climbed the tree and got it, she showed it to the Europeans. They looked at it and nibbled off little pieces of it.

After that _____ Napangardi saw a little crocodile in the water. After she showed us, we all ran to see it. We only saw its two eyes. When it saw us, it dove back underneath the water. After that we waited for it with sticks. We walked round and round with sticks waiting for it.

After that we ate a lunch of food and meat. After that we went swimming again. While we were in there the Europeans threw us apples.

After lunch the old women went a long ways away for fish. When they returned, they carried back fish. After that we came back to Lajamanu. That's all.

The Legend of Jinini

Long ago the world was without people; only birds and animals lived at first. A man and a woman were put there by the Dreaming. He gave them the names Purukupali and Pima. These two did not have any children.

Then the man went hunting for meat. The woman stayed behind and then, unaware of any danger, she walked around a big pile of rocks. A whirlwind emerged from there, and she became afraid. A little bit later a child was born. They sat with it in the creekbed for a long time.

Now the big child sat with its mother in the shade, and a young boy approached her in the shade with the child. From a distance he looked at her from among the leaves. He loved her. That boy lusted after that woman.

Now her husband used to always go out hunting after meat. The woman used to wait looking all around for the young boy; then leaving the

child lying in the shade she went off. Day after day those two used to secretly run off.

Later the mother and the young boy came back to the child, who was lying in the sun, and the mother embraced it. She listened for its breathing. But it just lay there limply.

Then the woman's husband came upon those two in the shade with the child, and the man took the woman by the arm and slapped her. After that she ran away.

The man held the child in his embrace. Putting the child down he swore at the young man and told him, "You have brought shame on us all." Picking up a stick he chased that young man.

Picking up the child he went towards the ocean and with it he drowned himself. But Japara [the young boy] became afraid and went up into the sky and turned into the moon.

That's all my story.

3. CONCLUSION

What results can be seen from all of this? First of all, the reading and writing skills of all the Warlpiri assistant teachers improved greatly, this being to their benefit not to mention the benefit of the Warlpiri children who look to them as role models. Second, numerous books have been produced semi-independently by people who participated in these workshops. Such stories as *The Little Red Hen*, *The Fox and Hen*, *The Man and the Cockatoo*, and *The Prodigal Son* have been first-drafted by various ones working from modified English versions. This has speeded up the process of getting a good first draft which heretofore had to be done face-to-face between the translator and language consultant. Now, several of these Warlpiri people are gaining experience in the basics of story writing and translating. Third, whereas before all cassette recording of stories was done by myself, the translator, now there is a small but growing number of people capable of producing good quality, fluent narrations. Fourth, we have since followed the first two workshops with another writers workshop, again with a number of first time writers. Several of the Warlpiri people have also visited the SIL centre in Darwin and received hands-on training in book production in the printshop and cassette recording in the studio. A further benefit to the community is that upwards of a dozen people are employed part-time at the Lajamanu Literacy Centre.

It is difficult to evaluate all the effects these workshops have had. One definite benefit has been to show various of the Warlpiri people

that literacy is not some magical tool owned by only the whites. A prevalent attitude among them is that English is easy (notwithstanding basic non-literacy in this area too) and that Warlpiri is hard. Now Warlpiri literacy is seen as being do-able. The attainment of this skill is increasingly being seen as a way of exercising control over their own community, as a way of preserving what yet remains of their cultural heritage.

APPENDIX A: MATERIAL FROM TEACHER TRAINING WORKSHOP

8 March 1982

English Alphabet	Warlpiri Alphabet
a	a
b	
c	
d	d
e	
f	
g	g
h	
i	i
j	j
k	k
l	l
m	m
n	n
o	
p	p
q	
r	r
s	
t	t
u	u
v	
w	w
x	
y	y
z	

English Vowels	Warlpiri Vowels
a e i o u	a i u aa ii uu

9 March 1982

p	m	mp
parra	mardu	pampa
pantirni	marrka	mpa

parnta	miyalu	jampirni
purdangirli	murru	ngumparna
punku	murntu	mumpari
yapuyapu ngarni	ngama	kampami
milpa	yirnmi	mamparlpinyi
jurlpu	lirrimi	
wurulypa	manmarrpa	
wapirra	jama	

9 March 1982

Some Warlpiri letters can stand alone to make one sound:

a i j k l m n p r t u w y

Some Warlpiri letters must join together in pairs of two to make one sound:

aa ii nj rl ly rn ny mp nt rd rr ng

Some Warlpiri letters must join together in a group of three to make one sound:

rnt ngk

Vowels are those letters which stand for sounds made with the mouth open.

Warlpiri vowels: a i u aa ii uu

Consonants are those letters which stand for sounds made with the mouth partly or completely closed.

Warlpiri consonants: j nj k ngk l rl ly m n rn ny ng p mp r rr rd t rt nt rnt w y

These letters are NOT used in writing Warlpiri:

b c e f h o q s v x z

10 March 1982

ng	k	ngk
ngapa	kampami	wingki
ngurru	karnta	pungku
nganimpa	kartaku	wijingki
nguku	pikirri	ngulajangka
junga	punku	mingkirri
munga	wanka	yungkurnu
langa	wikinpa	kangka
ngawurrngawurrpa	wirlki	yangka
yungu	yakarra	yungkarla
pingi	makunta	nyangka

10 March 1982

m p mp

Put either m or p or mp into the blanks to make a word. Then write the complete word in the space at the right.

1. __unku _____
2. nga__a _____
3. lirri__i _____
4. ka__ami _____
5. __a _____
6. __iyalu _____
7. ya__a _____
8. jurl__u _____

9. ja__a _____
10. __arrka _____
11. __il__a _____
12. __a__a _____
13. __ardu _____
14. __urdangirli _____
15. yirn__i _____
16. _u__ari _____
17. ngu__arna _____
18. wuruly__a _____
19. __urntu _____
20. ja__irni _____

12 March 1982

Make all the words you can think of using these syllables learned so far.

pa	ma	mpa	ka	nga	ngka
pi	mi	mpi	ki	ngi	ngki
pu	mu	mpu	ku	ngu	ngku

[space provided on worksheet for 20 words]

22 March 1982

Consonants: r rd rr m mp p k ng ngk ny j nj w y

Vowels : a i u

Of the above consonants the following may occur at the end of a syllable: rr ny r

Make as many words as you can with the above letters.

1. 11.
2. 12.
3. 13.
4. 14.
5. 15.
6. 16.
7. 17.
8. 18.

9. 19.
10. 20.

Can you make a word using each of the following closed syllables?

many

tuny

nyiny

lany

winy

nirr

larr

ngurr

pirr

purr

26 March 1982

Put the correct vowels into each blank space to make a word.

1. j__rrng__nj__
2. k__rd_ng__rl_p__t__k__
3. k__n__nj__rn__
4. j__ly__rrny__n__j__
5. p__n__j__rl__ny__y__rn__
6. j__rr__m__k__r__
7. y__t__rl__
8. k__lk__rr__w__n__
9. j__t__r__y__rr__rn__
10. rd__lyp__rrp__
11. k__n__nj__k__r__
12. ng__ngk__rrny__n__m__
13. ng__ly__k__r__
14. y__rt__n__rr__
15. p__rrj__rd__
16. m__lk__y__rr__rn__

17. j__ng__j__ng__
18. p__lk__p__ny__
19. m__y__l__
20. k__r__ng__nt__

Two Sample Stories with Translation

Yirdiykirli

Mungapatu manu parrapatukulpa warrarda wantija ngapaju. Yirdiyijilpa punkunyayirni karrija. Kulalpalu nyarrpa yantarlarni turakiji mangarrikirliji manu nyiyakantikantikirliji. Pintapintarlulku kala kangurnu mangarri manu kuyuju nganimpakuju. Kajilpalu yirdiyi ngurrju-mantarla, ngulaju kalaka yanirni turakiji nyiyakantikantikirliji nyampukurraju. Ngulajuku.

The Road

Night and day the rain was falling. The road was really bad. There was no way that a truck could come with food and supplies. The plane used to bring in food and meat for us. If the road were to get better, then the truck could come in with supplies for us. The end.

Ngapakurlu

Karrujulpa karrija ngapawanguwiyi. Ngulalpa ngapa wantija nyampurla, ngulajulpa karlija ngapaju karruikurra. Ngula ka ngapa wirilki parnkami karrungka. Kurdukurdu kalu yani julyurl-wantinjaku karrukurra. Wiriwirirlangu kalu yani karrukurra julyurl-wantinjaku. Ngapa ngula wantija nyampurla, marna manu watiya kalu pardimi ngurrjunyayirni. Lajamanuju ka karrimi ngurrjulku wajirrkilki.

The Rain

At first there was no water in the creek. Then when the rain fell here, the water flowed into the creek. Now the water is deep in the creek. Children go to swim in the creek. Adults too go to the creek to swim. Now that the rain has fallen here, the grass and trees are growing really well. Lajamanu is good now and green.

APPENDIX B: MATERIAL FROM WRITERS WORKSHOP

Testing

At the time of the workshop there had been little coherent effort made to determine the precise reading and writing capabilities of Warlpiri staff members at the Lajamanu school. Thus the following tests were designed and administered to fourteen of the workshop participants at the beginning of the workshop. The first was a cloze test, and the second was an oral reading exercise.

The following two passages were used as cloze exercises:

Cloze Sample 1 'Wirlinyikirli'

Watiji yanu wirlinyi, ngula 1_____ parlu pungu ngarninjakura 2_____-kurra. Ngulajangkaji 3_____-ngkiji luwarnu marluju. Ngula nyurnulku marluju 4_____-njarla yirrarnu jimantarla. Kangu pina ngurra- 5_____.

Answer(s)-with explanation

1. content word 'marlu' (kangaroo) or synonym thereof.

2. content word in complex subordinate clause; answer can be a noun such as 'marna' (grass) or something else kangaroos eat or drink or another verb in the infinitive form.

3. content word 'wati' (man) or any other two-syllable synonym thereof with the final vowel i.

4. content word, non-inflecting verb base only, 'jarna' (lifting) or some synonym thereof.

5. functor, allative case suffix 'kurra' (towards).

Cloze Sample 2 'Jimanypakurlu'

Yimi yirna wita wangka, yirrarni nyampurla wirlinyiwarnu. Yanurnalu nyampungurluju 1_____-ngurlu, karlarra- 2_____ yanu yiwarrawana mutika- 3_____, ngajulu, Jampijinpajarra, Napangardi, Nungarrayi, 4_____. Yanurnalu karlarra, yirdiyi yangka kuja ka 5_____-rra Yurntumukurra manu Nangkurd-6_____. Ngularnalu yanu Wiyalakurra. Ngularnalu jupu karrija yali- 7_____. Yamangka lparnalu nyinaja. 8_____-rnalu mutikangurlu. Jurnarrpalkurnalu manu miyi 9_____ ngapa. Yanu- 10_____ yamakurra. Japurna- 11_____ Jampijinpajarra,

"Warluju kanpala mardarni 12_____?" Jampijinpakariji 13_____, "Lawa." Jintakarilkiji wangkaja, "Lawa, warlu- 14_____. Ngajurna wangkaja, "kala nyarrpa mani- 15_____ nyampuju nalija?" Jintakariji wangkaja, "16_____-rlipa ngurrju manu." Ngajurna wangkaja, "Yuwayi ngulajuku." Yanurna. Watiya- 17_____ pakarnu mayingkakurlurlu linjijarra 18_____. Kangurna pina yama- 19_____. Jungajuku yirrarnurnarla marna yardijardiji. Ngulajangkaju 20_____-kurlangu kuna. Jungajukurlujarra rduyulungu jimanypalku. Luwarnurlujarra. Lawawiyi kamparruwarnuju. Ngulajangkaji jintakarilkirlijarra yarda 21_____. Palkalkurlujarra luwarnu 22_____-ji Jampijinparlu. Jungajuku rduyulungurnalu jimanypajangkalku 23_____-ju ngurrjunyayirni. Ngularnalu nyanu nalijalku purraja. Ngularna- 24_____ ngajuju wirlinyilki jurnta yanu. Purdangirlilpalu purraja. Mirntangalijili 25_____ nyanungurluju. Ngakalkurna ngaju yanurnu karli- 26_____ pakarninjarla. Nyarrparna kuja ngulaji ngurrju manu? Kalarna nyangu ngajuku- 27_____. Kala 28_____ luwarnu. Kala ngurrju manu kujapiyarlu. Ngulajangkarlu pinangkulkurna 29_____. Ngulajukurna nyampuju wita jaruju 30_____.

Answer(s)-with explanation

1. content word, noun 'yuwarli' (house) or synonym.
2. bound pronoun, '-rnalu' (we-exclusive)
3. functor, case suffix 'kurlu' (with) or 'rla' (locative)
4. content, person's name
5. verb 'ngunami' (lies) or synonym
6. functor, allative case suffix 'kurra' (toward)
7. functor, locative case suffix 'rla' (at)
8. verb 'jitija' (disembarked) or synonym
9. conjunction 'manu' (and) or synonym
10. bound pronoun '-rnalu' (we-exclusive)
11. bound pronoun '-palangu' (them two)
12. question marker '-nya' or content word 'palka' (present)
13. verb 'wangkaja' (said) or synonym
14. case suffix, privative 'wangu' (without)
15. bound pronoun '-rlipa' (we inclusive) or other 1st person pronouns
16. content word 'jimanypa' (firesaw) or synonym
17. bound pronoun '-rna' (I)
18. content word 'jirrama' (two) or other alternatives
19. case suffix, allative '-kurra' (towards)
20. content word 'puluku' (cow) or any animal
21. verb 'luwarnu' (sawed) or synonym
22. content word 'warlu' (fire) or synonym
23. content word 'warlu' (fire) or synonym
24. bound pronoun '-jana' (them)
25. verb 'ngarnu' (ate) or synonym
26. case suffix '-kirli' (with)
27. relational suffix '-palangu' (ascending kinsman)

28. content word 'jimanypa' (firesaw) or synonym
29. verb 'luwarnu' (sawed) or other action
30. verb 'wangkaja' (spoke) or other verb of telling.

As I had never done this type of thing before, I found three people whom I knew had fairly good literacy skills in Warlpiri and administered the tests as a control. The story *Wirlinyikirli* is a short and semi-contrived story and was used to familiarise them with the type of answer required. Once they had the idea of filling in the blanks with the most appropriate answer, I allowed them as much time as necessary to complete the test story *Jimanypakurlu*. This story is the verbatim copy of an oral text recorded several years ago by a local man. For the control test there were 36 blanks to fill, and the three controls scored 32, 32 and 30. Based upon their errors, I reduced the number of blanks to 30. If I were to use this particular test again, I would cut the nunber of blanks to 20 as several people simply wore themselves out due to the strain of concentration over a long period of time.

The majority of those tested scored from 10 to 24 correct. The test was too difficult for a couple others, and at least three would have improved their scores had they not run out of steam. In view of later performance during the workshop, a score of at least 18-20 right would indicate an ability to handle the writing requirements. Anything much below that indicates that the person cannot write quickly or accurately enough to put thoughts clearly onto the page.

The reading test consisted of the following three samples:

Oral Reading Sample A

Yirna wita jaru wangka, yirnaji yirra pura ngajulu, ngaju kujarna palka jarrija. Ngurungkarna palka jarrija Yarlalinjirla. Yarlalinji kalu ngarrirni, Lander River pajirni kalu. Ngulangkarna ngajuju palka jarrija, manu Yirnapakarla kularningirnti. Yirdingkaji ngapangkajurna ngajuju palka jarrija Lirrapanjirla. Nyampunya jaru kapurna yirrarni nyampurla cassette-rla.

Oral Reading Sample B

Nyampurla karlipajana mardarni karnta manu wati, ngula kalu pinyi purlapa manu yawulyu wapirrakurlangu. Yapa panu kalu yanirni nyanjaku manu purda nyanjaku ngurrju. Karntangku ngula kalu yunparni manu pinyi yawulyu ngurrju, manu watingki ngula kalu nyanu yirrarni kuruwarri wapirrakurlangu ngurrju. Yapangku ngula kalujana nyanyi purlapakurra pinjakurra. Wuraji manu mungangka yanirni kalu. Purda nyanyi kalu wapirrakurlangu yimi ngurrju.

Oral Reading Sample C

Nyampu pipa ngulaji kamparruwarnujuku nyiyakantikantiki. Kamparruju nyurruwiyiji ngulaji Kaatuju nyinajalpa yangarlu nyanungumipa yalkiriki manu walyaku lawajuku. Ngulajangkaji ngurrju manu yalkiri manu walya lawajangkaji jarumiparlu wangkanjarlu. Yalkiri kapi walya kuja ngurrju manu, ngulajilpa lawajuku walyaju ngunaja kirlkajuku. Ngulaji nyiyakantikantiwangujuku. Kulalpa watiya manu marna karrija lawa. Kaaturlu kuja yalkiri manu walya ngurrju manu, ngulajangkaji mangkurdurlulku wuulykujurnu, ngulalpa parrawangujuku karrija murnmajuku. Kaaturlujulpa pirlirrparlu warru warrawarra kangu mangkurduwarnarlu.

Sample A is of moderate difficulty. It consists of the opening paragraph of an oral text concerning a person's life history. Sample B is a complete expository text and is relatively simple reading. Sample C is of great difficulty, being the translation of Genesis 1:1-2 into Warlpiri.

Each participant was tested individually. They were allowed as much time as desired to read through the passages, and then they recorded them onto cassette tape. After this I questioned each one briefly to determine if they derived at least general meaning from the passages.

Afterwards I listened to each reading sample, recording on individual evaluation sheets the time required to read the passages and the total number of miscues. A miscue is defined as any deviation whatsoever from the printed page and includes missed punctuations, repeats, self-corrections, lengthy pauses, omissions, insertions and substitutions. The assumption is that fluent readers will tend to make fewer miscues, but that not all miscues represent non-fluent reading. This combined with the overall speed of reading gives some idea of a person's fluency. I was able to test five of the participants a second time at the end of the workshop, and these results are included in the following chart.

Participant	Cloze Score	Reading Rate	Miscues
A	32[1]	46/68[2]	6
B	23	53/53	10
C	20	40/53	20
D	17	38	31
E	14	27/45	50

F	19[3]	26	38
G	18[3]	25/40	56
H	15	25	42
I	24	24	42
J	13[3]	21	31
K	10[3]	20	51
L	-[4]	10	60+[5]
M	10[6]	8	60+[5]
N	-[4]	6	60+[5]

[1] This person was one of the control group.

[2] Number following the slash represents the word per minute rate at the end of the workshop. Number before the slash represents the rate four weeks earlier.

[3] These people would have scored higher but left the last portion of the test blank.

[4] These people found the cloze exercise too difficult to complete.

[5] These people read only one or two of the reading samples and so the number of miscues would probably well exceed 60.

[6] This person may have received prompting from some of her friends. Otherwise there is not a good explanation for her surprisingly good score here.

While not too much can be inferred from such primitive tests, several things can be stated. First there is a general correlation between an increase in reading speed and an improved score on the cloze tests. Slow reading does deter comprehension. Second, slow reading is no guarantee against making miscues. As speed decreases, miscues increase almost geometrically. Third, and this is one of the exciting spin-offs from the writers workshop, practice and continued exposure to both the reading and writing of Warlpiri pays off dramatically in fluency. This can be seen, I believe, in the significant if not phenomenal increases in reading rate achieved by four of the five people tested twice. I might add here that the number of miscues the second time around

remained proportionately the same. With constant encouragement and practice a number of these people can achieve the optimum reading rate (oral) of 80 words per minute.

Worksheet 1 Types of Writing

A story can be told in many different ways. You might think of some ways which are more interesting than others and more fun to read. Look at the examples below. Which do you think is most interesting? Circle (a) or (b).

1. (a) So they fought with both hands and teeth until the taipan was exhausted.

(b) They grabbed each other around the middle and knocked each other this way and that. They knocked each other to the east and then to the west, to the north and to the south. Their tracks went everywhere. "Hey, that's enough," said the taipan to the lizard. They were both out of breath.

2. (a) Kaarnkangku kangu marlurlu jakurdukurdu. Ngulajangka pakarninjarla ngarnulku.

(b) Kaarnkangku kangu marlurlu jakurdukurdu. Ngulajangka nyanungurlu yarrirni parnkaja yamangurlu. Yalumpurlajuku pakarnu. Kakarda rdungkurrpakarnu. Yamakurranyanu kangu. Purrajanyanu kuyulku, ngula ngarnu yalumpurlajuku.

3. (a) Then I was becoming cold and the place was becoming misty. The noises were getting louder and I could not find the way to go. I became stiff with fear and my legs became weak; before I could run, but not now. My strength was lost. My knees became weak. I ran like a baby duckling runs, when it is just hatched out from the egg.

(b) I was cold and afraid and went home very scared.

Now you try it. How could you make the following one sentence story more exciting?

Yapakari yapakarilpalu turnu jarrija Lajamanukurra Purlapa Wirikingarniji.

Use this space.

Worksheet 2
Using the exact word
Kanyi 'carry' What are different ways of carrying things?
on the shoulders
on the hip
on the back
on the front
behind the neck

wapami 'walking' What are ways of walking?
stomp about
bumping along crazily
limping
stooped over
skipping

ngurrju mani 'make' What are different words for making...?
fire
boomerang or spear
damper
house or humpy
hairstring
drawing
clearing or campsite
How many different types of fire can you think of?
.bl 2

Worksheet 3

Using exact and interesting words

We can use plain words to describe something or we can use exciting words to describe the same thing. The sentences on the left are plain; they don't give us much of a picture or idea. The sentences on the right tell us the same things but use more specific and interesting words.

1.	He saw a snake.	or He saw a taipan. He saw a skinny snake.
2.	He ate his food.	or He gobbled up his food quickly. He ate his food carefully. He ate his food carelessly, spilling it all over.
3.	He was angry.	or His face got all red. The veins on his neck popped out. He grabbed his spears and ran all around the camp threatening to kill all his family.

4. Murrumurrunyanu purda nyangu. or Lawalku wakujrraji japujapulku pingkalku yiirli kanjaanurnu jurrkujurra.
5. Watingki warlu yarrpurnu. or Watingkilpa warlu yirnta larralarra yarrpurnu.
6. Kinkingkinyanu pakarnu. or Rdakangkujunyanu lirra punulypakarnu kinkingki.

Now you try some.
1. Watilpa mata nyinaja
2. Kurdu wardinyi jarrijaa
3. Yalumpu kurdu minjinypanyayirni.

.bl 2

Worksheet 4

We can describe things by telling what they are like.
1. He was deaf, just like a dead tree, just standing there.
2. He had a boil on his bottom and couldn't sit straight; he was like a boat leaning to one side on dry land
3. He was standing on one leg like a brolga.
4. He ate noisily like a pig.
5. I was tired as if I had walked and walked all day.

Now, you describe these things by telling what they are like.
1. Jeffrey's head is like. . .
2. He is walking like. . .
3. The moon is like. . .
4. She was big and fat like. . .
5. He talked loudly like. . .
6. He was shy like. . .
7. He was strong like. . .
8. Her hands worked swiftly like. . .
9. He danced like. . .
10. He was eating his food sloppily just like. . .
11. He was tall like. . .
12. His leg was swollen up like. . .

Worksheet 5

Feelings, emotions are important. People like to read about how other people feel in different situations. It is important to describe specifically what we mean about our feelings. Certain words go together naturally to describe how people act and feel when they are angry, sad,

worried, lonely or frightened. For example in English, the following words go together to describe 'fear'.
dark, ghosts, snakes, shiver, sounds in the night, someone jumping out at you, shake, tremble, sweat, go cold, heart beats fast, weak legs, stiff body

What Warlpiri words or phrases go together to talk about someone who is 'lani'?
'yirraru'
'kulunyayirni'

Think about the film story *The Legend of Jinini*. On a separate piece of paper, write about the people's feelings in regards to one of the following:
1. How the man felt when he first saw the woman.
2. How the woman felt when she saw the whirlwind.
3. How the boy Japarla felt when he saw that woman.
4. How the baby felt dying in the hot sun.
5. How Purukupali felt when he discovered his dead son.
6. How Japarla felt after Purukupali cursed him.

Worksheet 7

Punctuation

Before stories are made into books, someone must check to see if the capital letters, full stops and commas are put in the right place. Here are some rules to follow.

Capital Letters: The first word of each new sentence begins with a capital letter. People's names or the names of places begin with capital letters.

Full Stops: Put a full stop at the end of each sentence. Read the story aloud and whenever you pause for a long time or for a breath, put a full stop there.

Commas: Put a comma within a sentence if you make a short pause there while reading it. Remember: full stops are for long pauses, and commas are for little pauses.

Here are some English examples where we sometimes put commas:
1. They took their swags, drinking water, spears and woomeras across the river.

2. After they finished eating, they went to sleep.
3. When we are happy, we love to dance and sing.

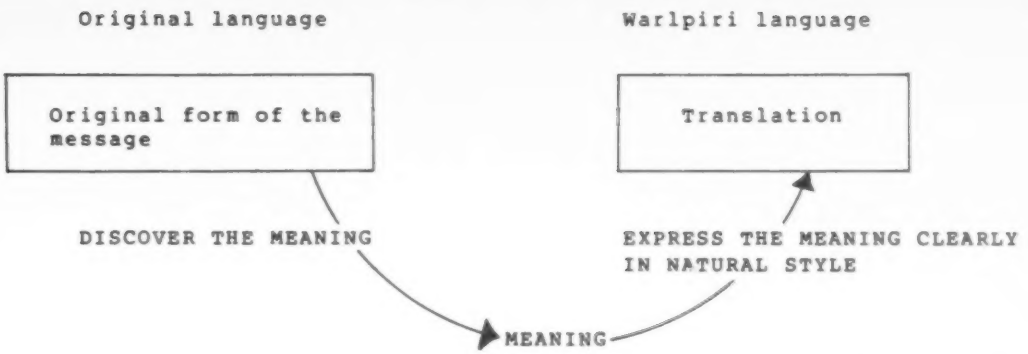
PUNCTUATION IS IMPORTANT!

The following Warlpiri story contains no capital letters, full stops or commas. Read it and see how difficult it is too make sense of it and to read it clearly. Decide where you would put capital letters, full stops and commas.

lajamanu ngurrjunyayirni ka karrimi jalanguju yukuri manu ngapa ngunami ka wirinyayirni karrungka jalanguju manu kalu watiya manu marna karrinjayani ngurrjunyayirni warrukirdikirdi jalanguju manu kalu yapa yani karrukurra panujarlunyayirnimanji julyurlwantinjaku kuja yani kalu witawita manu wiriwiri kardiya manu yapa nyiyaku kujarla pilji yanu kirlkanyayirniki ngapakuju ngulakunyarla liji yirrarnu yapa panuju manu kardiyaju yuwayi jungajuku ngaka jalangu ka ngunami kirlkanyayirniji ngapaji yirdija wantija kirntangipatuku ngapaji wirinyayirni nyampurlaju lajamanurla kuja yirrarnu mangarri yupujuwardingki witawangu mangarriji kuja yapakurlangu jurlpukurlangu kala kiwinyiwinyirliji lawakula kanganpa jardawangu mani yapaji kiwinyiwinyirliji ngakanya karnalu jalangu nyinami mangarriwangujirramakurnalu nyinaja kirntangiki mangarriwanguju kujakulunganpa kardiyalku yirripurlayirnikirli ngulangkunyalunganpa wankaru manu mangarrikirlirliji lawalkulparnalu jata nyangu ngapa wiripuruju ngulajuku jaruju lajamanukurluju

TRANSLATION
Government documents
Popular English stories
Bible stories
Health notices
YMCA Announcements

What Is Translation?



REMEMBER: YOU CANNOT TRANSLATE THE MEANING UNTIL YOU UNDERSTAND IT PROPERLY YOURSELF!

REMEMBER: TRANSLATION IS THE RE-TELLING OF THE EXACT MEANING OF THE ORIGINAL MESSAGE, USING THE GRAMMAR AND IDIOMS WHICH ARE NATURAL IN WARLPIRI.

REMEMBER: IT IS IMPORTANT TO STUDY THE MEANING OF A WORD OR PHRASE IN THE CONTEXT IN WHICH IT OCCURS.

DISCOVERING THE MEANING

5 Steps in Analysis

1. Look for all the event ideas in the passage. List these event ideas, expressing each one by a verb.

2. Fill in the participants which take part in each event. State in words any information which is needed to make the full meaning of the original message clear.

3. Study the way in which the events fit together in relation to each other. Make any rearrangements which are necessary to make these relationships between the events clear. As you do this, begin to think how the ideas will be expressed in the translation.

4. Translate.

5. Check back to the original text to make sure that you have translated the meaning correctly. Check that nothing has been missed out, and that the meaning has not been changed in any way.

Practice by translating the following short story into Warlpiri. We will go through the steps together.

One day a man went hunting. He caught sight of a kangaroo eating grass beside a stream. He snuck up behind it carefully and shot it with his rifle. Then, lifting it up on his shoulders, he carried it back to his camp. There the man cooked it and ate it.

Step 1: Find all the event words in the story and draw a circle around them. List them below:

1.
2.
3.
4.
5.
6.
7.
8.
9.

This story is easy because all of the event words in it are expressed as verbs. Verbs are action words.

TRANSLATION

Step 2: Fill in all the participants (people or things) which go with each event/verb.

1.	went hunting
2.	caught sight
3.	eating
4.	snuck up
5.	shot
6.	lifted up
7.	carried
8.	cooked
9.	ate

Step 3: How do these events fit together? What happened first? Next? Did any of the events happen at the same time? Are any of the events out of time order?

1. man went hunting
2. man caught sight of kangaroo
3. kangaroo was eating grass
4. man snuck up on the kangaroo
5. man shot kangaroo with rifle
6. man lifted up kangaroo on shoulders
7. man carried kangaroo home
8. man cooked kangaroo
9. man ate cooked kangaroo

TRANSLATION

Step 4: Now you are ready to translate the story. Don't look at the original story on page 2. Look at what you have just done in Step 3 and think about this as you put it into Warlpiri. Remember, you want it to sound like good Warlpiri, not bad English.

[BIG SPACE]

Step 5: Now check your translated story with the original. Have you forgotten anything? Have you added anything which wasn't there? Does your translation sound like good Warlpiri?

TRANSLATION

Here is the story 'Jesus raises a widow's son' as it appears in Luke 7:11-77 (New International Version). Translate it into Warlpiri remembering the 5 Steps of Translation.

Soon afterward, Jesus went to a town called Nain, and his disciples and a large crowd went along with him. As he approached the town gate, a dead person was being carried out—the only son of his mother, and she was a widow. And a large crowd from the town was with her. When the Lord saw her, his heart went out to her and he said, "Don't cry."

Then he went up and touched the coffin, and those carrying it stood still. He said, "Young man, I say to you, get up!" The dead man sat up and began to talk, and Jesus gave him back to his mother.

They were all filled with awe and praised God. "A great prophet has appeared among us," they said. "God has come to help his people." This news about Jesus spread throughout Judea and the surrounding country.

Step 1: Find all the events; circle them above. List them on the next page.

TRANSLATION

List all the events here down the centre of the page opposite the numbers.

EVENTS

[The numbers 1-30 were listed here, on the left side of the worksheet.]

Step 2: For all the above events, list (in English) all the people or things involved in the events.

Step 3: What are the relationships between all the events? What happened first? Next? Did any of the events take place before another one which was mentioned first in the story? If so, you may decide to change the order a bit. Ideally you want to translate events in the order in which things happened.

Step 4: Now translate the story referring to your listing and notes made under Steps 1-3.

Step 5: Check over your translation. Have you forgotten anything? Have you added something that wasn't there? Does it sound like natural Warlpiri? Make any necessary changes to make it better.

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